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RECORDS OF BIG GAME

SIXTH EDITION

Rowland Ward



751



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RECORDS OF BIG GAME



W. Barnett. Photo.

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RECORDS OF BIG GAME

WITH

THEIR DISTRIBUTION, CHARACTERISTICS, DIMENSIONS,
WEIGHTS, AND

HORN & TUSK MEASUREMENTS

SIXTH EDITION

By ROWLAND WARD, F.Z.S.



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TO THE
SPORTSMEN OF THE WORLD
WITHOUT WHOSE ENTERPRISE THESE RECORDS
COULD NOT HAVE BEEN COMPILED
THIS BOOK IS DEDICATED

PREFACE TO THE SIXTH EDITION

THERE are three main points the great-game sportsman generally wants to ascertain :—1st, the name of his quarry ; 2nd, how it compares in point of size with other specimens of the same species ; and 3rd, what is the extent of its geographical range. All these he will be able to ascertain from the present work.

As in former editions, the finest known specimens of antlers, horns, tusks, and skins are, so far as possible, recorded. It has been found impracticable in some instances to verify the measurements of trophies in distant parts of the world ; and such records must accordingly be taken on the responsibility of their respective owners or those who have been good enough to measure them. It is to be regretted that one pair of hands and a steel-tape are not responsible for the measurements of all the actual “records.” One of the many difficulties in connection with compilations of this nature is due to the circumstance that different measurements of the same specimen are sometimes received, this arising from the use of a tape or string instead of a steel-measure.

In the case of the horns of freshly killed hollow-horned ruminants an allowance for shrinkage should be made when comparing with older trophies. An average specimen of an *Ovis ammon* horn, for instance, will frequently shrink half an inch in length and proportionately in girth after it has left the field.

Among the deer tribe many difficulties have arisen as to comparison ; and it may be pointed out that although length of antlers is invariably put at the top of the list, other particulars, such as *number of tines, general symmetry, spread, and weight of antlers*, go in many instances to the making of a good trophy.

Great care has been taken with regard to the accuracy of the dimensions given ; and, considering the number of measurements, it will be readily understood the task attempted has been one of no ordinary difficulty.

It has been found advisable to omit the measurements of many of the smaller and less important specimens quoted in the earlier editions. In a number of instances the measurements of record specimens sent by owners and other gentlemen have proved untrustworthy, and have had to be left out.

As in the two previous editions, I am indebted for the definitions of the various species and races to Mr. R. Lydekker, who is also responsible for the scientific names employed. The number of species has in some cases, as in the argali group, been diminished by reducing what were formerly regarded as species to the rank of local races. In *A Trip to Pilawin* (1908) Mr. Lydekker suggested certain alterations in the arrangement of the deer ; and these and a few other amendments in classification have been incorporated in the present edition.

I have to thank many sportsmen and naturalists all over the world for the help they have afforded.

ROWLAND WARD.

August 1910.

ABBREVIATIONS AND SIGNS

— Owner's measurements and particulars, or other known authority.

♂ Male.

♀ Female.

... Unrecorded.

R, Right horn or antler.

L, Left horn or antler.

Measurements are usually on the outside of the longest horn from base to tip; but in Deer from the bottom edge of the burr, or coronet, to the highest tip-point, except when notified to the contrary.

Circumference is at the base; in most Deer above brow-tine, but in the Red-Deer and Wapiti group between bez and trez tines.

Length is expressed in inches, when not otherwise stated.

Weights taken in the field should be accepted as approximate, and, unless the contrary is stated, are those of adult males.

Heights are in most cases taken at the shoulder of adult males (see p. 518).

N.B.—Unless the contrary is stated, the specimens and illustrations are those of males.

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RECORDS OF BIG GAME



From a Photograph by Whyte.



Antlers of Red Deer killed by the late Lord Burton, with fully developed cups. Counting from the skull upwards, the first tine is the brow, the second the bez, and the third the trez, above which come the surroyals, or crown. The main shaft is termed the beam.

The RED DEER (*Cervus elaphus*).

THE red deer of Western Europe is the typical representative of the genus *Cervus*, in which the antlers of the males are set on the skull at an oblique angle to the middle line of the forehead, and always have a brow-tine, while they are generally more or less nearly cylindrical, although sometimes palmated. There is always a large bare portion on the muzzle, the face is long, the ears are generally large, and the tail is comparatively short, often extremely so. Although there is almost always a gland and tuft on the hind cannon-bone, usually situated high up, there is none on the hock itself. The coat may be spotted.

In the red deer the antlers are subcylindrical and complex, generally with a bez-tine, and always with a trez, the number of points exceeding five, and the crown frequently forming a cup. The tail is relatively long and pointed, and there is a distinct light-coloured patch on the buttocks, which includes the tail, although in the summer coat the tail itself is dark-coloured. The general colour of the adult

summer coat is reddish brown, and that of the winter dress greyish brown, while the young are profusely spotted.

Red deer, in the widest sense of the term, are inhabitants of Europe, North Africa, Asia Minor, and Northern Persia. In the typical red deer (*C. elaphus typicus*) of Sweden, and its representatives in Western, Northern, and Central Europe, the antlers attain their maximum degree of complexity, sometimes having twenty or even more points, although in many Scotch examples the bez-tine is wanting. The Swedish red deer is the typical *Cervus elaphus* of Linnæus, in other words, *Cervus elaphus typicus*. From this race the Norwegian stock differs by its inferior size, the absence of a mane of long hairs on the neck, and the lighter colour of the summer coat. The general colour of the Swedish race is dark reddish brown, almost chestnut, with the legs sooty or blackish brown; while in the Norwegian animal the colour is yellowish brown tinged with grey, the legs being paler and of a brownish slaty grey. The rump-patch is also lighter in the Norwegian race, being reddish yellow with a blackish border, while that of the Swedish red deer is less distinct, sometimes scarcely differing in colour from the flanks. There are also differences in the skulls of the two races, especially noticeable in the case of hinds. The Norwegian red deer has been named *Cervus elaphus atlanticus*; and the Scotch red deer may belong to the same race, although it has been named *C. e. scoticus*. Three races of red deer have been named in Germany; and the Spanish red deer is certainly distinct. Nevertheless, all these forms of red deer are so near one another that they may be alluded to collectively as the western race.

The Corsican red deer (*C. elaphus corsicanus*), of Corsica and Sardinia, is a very small race, with the bez-tine of the antlers wanting, and the general colour of the upper-parts dark brown in summer and blackish in the winter. Nearly allied is the North African red deer (*C. elaphus barbarus*), which is of rather larger dimensions, with a greyish-brown streak down the middle of the back, and small irregular whitish spots on the flanks and sometimes on the back; traces of such spots being occasionally observable in the summer coat of hinds of the typical race. The bez-tine seems to be very generally wanting.

The Eastern red deer (*C. elaphus maral*) is a large race, described on page 29.

In a red deer killed at Spetchley Park the weight was 419 lbs. gross, and 216 when cleaned; while in one shot at Knowsley many years ago the clean weight was no less than 424 lbs. The height at the shoulder reaches about 4 feet. H.R.H. the Duke of Braganza saw a Continental stag shot which scaled 584 lbs., and shot a 10-pointer with a spread of 55 inches.

Lord Tweedmouth gave the following dimensions of a fine Scotch stag, shot October 9, 1880:—

Widest span over all, $39\frac{1}{4}$ inches; span inside below cups, 34 inches; span outside below cups, 37 inches.

Right antler.—Length, 39 inches; length of brow, $10\frac{1}{4}$ inches; of bez, 10 inches; of trez, 13 inches. Length of tines in cup, 10, 7, $4\frac{1}{4}$ inches. Circumference at coronet, $8\frac{1}{2}$ inches; between bez and trez, $7\frac{1}{4}$ inches; above trez, 6 inches.

Left antler.—Length, 38 inches; of brow, 10 inches; of bez, 8 inches; of trez, 11 inches. Length of tines in cup, 8, 6, and 4 inches. Circumference at coronet, 9 inches; between bez and trez, $7\frac{1}{2}$ inches; above trez, $6\frac{1}{4}$ inches.—Weight, 303 lbs. clean; but stag was much run.

A.—WESTERN RACES OF RED DEER.

a.—*Scottish Specimens (C. e. atlanticus).*

| Length on outside curve. | Circumference between bez and trez. | Tip to Tip. | Widest inside. | Spread. | Points. | Weight. lbs. | Locality. | Owner. |
|--------------------------------|-------------------------------------|-----------------|-----------------|-----------------|-----------------|--------------|--------------------|--|
| -41 | 7 | $22\frac{1}{2}$ | 35 | ... | 7+7 | ... | Inverness | Col. W. Hall Walker. |
| ¹ -40 | 6 | ... | 30 | ... | 10 | 203 | (1794) Glentilt | Duke of Atholl. |
| -39 $\frac{3}{4}$ | 5 | ... | 25 | ... | 6+6 | ... | Ardverikie | E. J. Wythes. |
| -39 | $7\frac{1}{4}$ | ... | 34 | $39\frac{1}{4}$ | 6+6 | 303 | Guisachan | Lord Tweedmouth. |
| | $38\frac{3}{8}$ | $5\frac{1}{4}$ | $20\frac{1}{2}$ | $29\frac{3}{4}$ | $33\frac{3}{4}$ | 6+6 202 | Meoble | Walter Jones. |
| -38 $\frac{1}{2}$ | $4\frac{3}{4}$ | ... | 26 | ... | 11 | ... | Isle of Rum | Sir George Bullough. |
| | $38\frac{1}{4}$ | $5\frac{3}{4}$ | 14 | $27\frac{3}{4}$ | 33 | 6+5 246 | Meoble | Walter Jones. |
| | $37\frac{1}{2}$ | $6\frac{1}{4}$ | ... | $38\frac{1}{2}$ | ... | 5+5 | Kinlochewe | Sir Kenneth Mackenzie. |
| -37 $\frac{1}{2}$ | ... | ... | ... | 32 | 11 | ... | ? | Duke of Sutherland. |
| | $37\frac{1}{2}$ | $4\frac{1}{2}$ | ... | $30\frac{1}{4}$ | ... | 5+5 | Wyvis | R. Shoolbred. |
| | $37\frac{1}{2}$ | $5\frac{1}{2}$ | ... | ... | 10 | ... | Conaglen | Lord Morton. |
| -37 $\frac{1}{8}$ | $5\frac{1}{2}$ | ... | 24 | $27\frac{1}{2}$ | 5+5 | ... | Forfarshire | R. L. Scott. |
| -37 | 6 | 22 | ... | ... | 8+8 | ... | Glenmoriston | J. M. Grant. |
| ¹ -36 $\frac{1}{2}$ | ... | ... | 35 | 12 | ... | ... | Do. | Col. W. Gordon-Cumming. |
| | $36\frac{1}{2}$ | 5 | 34 | $39\frac{1}{2}$ | 41 | 5+6 | Glenstrath-farrar | W. Radcliffe (shot by the late Roualeyn Gordon-Cumming). |
| -36 $\frac{1}{2}$ | $5\frac{1}{4}$ | ... | $30\frac{1}{4}$ | ... | 11 | ... | Benmore, Mull | Earl of Eglinton. |
| -36 $\frac{1}{2}$ | $4\frac{3}{4}$ | ... | $27\frac{1}{2}$ | ... | 11 | ... | Killilan | Col. Baldock. |
| -36 $\frac{1}{4}$ | $4\frac{3}{8}$ | ... | $24\frac{3}{4}$ | ... | 6+6 | ... | Arran | H.R.H. Prince Arthur of Connaught. |
| | $36\frac{1}{8}$ | 5 | ... | 22 | ... | 6+5 | Kintail | S. Loder. |
| | 36 | $5\frac{1}{2}$ | $16\frac{1}{4}$ | 28 | 36 | 7+7 | ? | Duke of Portland. |
| | 36 | ... | ... | 34 | ... | 6+6 250 | Morar | Walter Jones. |
| | 36 | $4\frac{1}{4}$ | $21\frac{1}{2}$ | 27 | ... | 6+6 | Caenlochan | Mrs. Henry Tate. |
| -36 | $4\frac{1}{2}$ | 17 | $28\frac{3}{4}$ | $31\frac{1}{4}$ | 5+5 | 225 | Meoble | E. M. Crosfield. |

- Owner's measurements.

¹ Recorded by J. G. Millais.

RECORDS OF BIG GAME

| Length on out- side curve. | Circum- ference between bez and trez. | Tip to Tip. | Widest inside. | Spread. | Points. | Weight. lbs. | Locality. | Owner. |
|-------------------------------------|---|-------------------|-------------------|------------------|---------|-----------------|---------------------------------|---------------------------------------|
| 36 | 4 $\frac{5}{8}$ | 19 $\frac{3}{4}$ | 28 $\frac{3}{4}$ | 30 $\frac{1}{2}$ | 5+4 | ... | Ardgour | Lord H. Vane Tempest. |
| 36 | 5 $\frac{1}{4}$ | 13 $\frac{3}{4}$ | 28 $\frac{3}{4}$ | 32 $\frac{3}{4}$ | 5+5 | ... | Glenkingie | W. M. Christy. |
| 36 | 4 $\frac{1}{4}$ | ... | 31 | ... | 5+5 | ... | N. Uist | W. Brigstock. |
| -36 | 5 $\frac{1}{8}$ | ... | 30 $\frac{1}{2}$ | ... | 6+7 | ... | Glenquoich | J. E. B. Baillie. |
| -35 $\frac{3}{4}$ | 4 $\frac{3}{4}$ | ... | 26 | ... | 6+6 | ... | N. Uist | C. H. Dendy. |
| -35 $\frac{1}{2}$ | 4 $\frac{1}{2}$ | ... | 31 | ... | 5+5 | ... | Loch Choire | Duke of Sutherland. |
| 35 $\frac{1}{2}$ | 5 $\frac{1}{2}$ | ... | 25 $\frac{1}{2}$ | ... | 6+6 | 244 | Sutherland | Abel Chapman. |
| 35 $\frac{1}{2}$ | 4 $\frac{1}{2}$ | 11 $\frac{1}{2}$ | 26 $\frac{1}{4}$ | 30 | 6+6 | ... | Isle of Mull | W. Mure. |
| -35 $\frac{1}{2}$ | 7 | ... | 26 $\frac{1}{2}$ | ... | 20 | ... | Glenquoich | Lord Burton. (See illus- tration.) |
| 35 $\frac{1}{2}$ | 4 $\frac{3}{4}$ | 27 $\frac{1}{2}$ | 34 | 36 $\frac{3}{8}$ | 4+3 | ... | Caenlochan | The late Henry Tate. |
| 35 $\frac{1}{2}$ | 4 $\frac{1}{2}$ | 24 $\frac{1}{2}$ | 29 $\frac{3}{4}$ | 32 $\frac{1}{2}$ | 5+5 | ... | Ben Alder | Hon. T. A. Brassey. |
| -35 $\frac{1}{2}$ | 6 | ... | 38 $\frac{3}{8}$ | ... | 5+5 | ... | Kinlochewe | Sir Kenneth Mackenzie. |
| -35 $\frac{3}{8}$ | 4 $\frac{7}{8}$ | ... | 28 $\frac{1}{4}$ | 33 | 4+4 | ... | Barrisdale | Walter Parrott. |
| 35 $\frac{1}{4}$ | 5 | 25 | 30 $\frac{1}{4}$ | 35 | 6+4 | ... | Coignafarn | J. Bradley Firth. |
| -35 $\frac{1}{4}$ | 5 | ... | 24 $\frac{3}{4}$ | ... | 6+5 | ... | Eskadale | Major A. Robinson. |
| -35 $\frac{1}{4}$ | 5 | ... | 25 | ... | 6+6 | ... | Knoydart | A. S. Bowlby. |
| -35 $\frac{1}{4}$ | 4 $\frac{7}{8}$ | 31 $\frac{7}{16}$ | 30 | ... | 6+6 | ... | Deanich, Ross- shire | G. Percy V. Aylmer. |
| 35 | 4 $\frac{7}{8}$ | 13 $\frac{3}{8}$ | 24 $\frac{1}{2}$ | 29 | 5+5 | ... | Glenkingie | W. M. Christy. |
| 35 | 4 $\frac{3}{4}$ | 22 | 28 | ... | 7+6 | ... | Talladh-a-Bhe- ithe, Rannoch | E. Weller-Poley. |
| -35 | ... | ... | ... | 34 | 10 | 225 | N. Morar | Major T. W. Gill. |
| -35 | ... | ... | 29 | 41 $\frac{1}{4}$ | 7+6 | ... | ? | Sir Arthur Grant, Bart. |
| ¹ -35 | 5 $\frac{3}{4}$ | 26 | 33 $\frac{1}{2}$ | 37 $\frac{1}{2}$ | 12 | ... | Guisachan | Lord Tweedmouth. |
| 35 | 4 $\frac{1}{2}$ | 19 $\frac{1}{4}$ | 26 $\frac{3}{4}$ | 28 $\frac{1}{2}$ | 5+5 | ... | Glenkingie | Sir Henry Hoare, Bart. |
| 34 $\frac{3}{4}$ | 5 | 15 $\frac{1}{4}$ | 26 $\frac{3}{4}$ | 29 $\frac{3}{4}$ | 6+6 | ... | Fealar | A. M. Thomas. |
| 34 $\frac{1}{2}$ | 5 | ... | 31 $\frac{1}{2}$ | ... | 6+6 | ... | Ardnamurchan | C. D. Rudd. |
| -34 $\frac{1}{2}$ | 4 $\frac{3}{4}$ | ... | 33 $\frac{3}{4}$ | ... | 5+5 | ... | Fannich | V. Watney. |
| -34 $\frac{1}{2}$ | 5 | ... | 25 $\frac{1}{2}$ | ... | 7+8 | ... | Cluanie | A. H. Straker. |
| -34 $\frac{1}{2}$ | 4 $\frac{1}{2}$ | ... | 25 | ... | 6+5 | ... | Strathvaich | P. D. Williams. |
| ¹ 34 $\frac{1}{2}$ | 4 $\frac{1}{4}$ | 26 $\frac{1}{2}$ | 31 | 33 $\frac{1}{4}$ | 5+5 | ... | Dalnaspidal | Mrs. Hall Walker. |
| 34 $\frac{1}{2}$ | 5 $\frac{1}{2}$ | 18 | 26 $\frac{1}{4}$ | 34 | 6+5 | ... | ? | W. Brodrick Cloete. |

- Owner's measurements.

¹ Above trez.

| Length on out- side curve. | Circum- ference between bez and trez. | Tip to Tip. | Widest inside. | Spread. | Points. | Weight. lbs. | Locality. | Owner. |
|-------------------------------------|---|----------------|-------------------|---------|---------|-----------------|--------------------------|-----------------------------------|
| 34½ | 5½ | 37½ | 34½ | ... | 12 | ... | Braemore | Sir John Fowler, Bart. |
| 34½ | 4½ | 18½ | 27 | ... | 6 + 5 | ... | N. Morar | J. R. Hutchison. |
| 34½ | 5 | ... | ... | 34½ | 12 | 231 (clean) | Glentilt | Duke of Atholl. |
| 34½ | 6 | 17¾ | 25 | 31½ | 5 + 4 | 222 | Caenlochan | Mrs. Henry Tate. |
| 34½ | 4½ | 22 | 28½ | 31½ | 6 + 4 | 204 | Cluanie | St. George Littledale. |
| 34½ | 4 | 21¾ | 29½ | 31½ | 6 + 5 | ... | Glenquoich | Duchess of Bedford. |
| 34½ | 5 | ... | 31½ | ... | 5 + 5 | ... | Knoydart | Capt. H. V. S. A. Bowlby. |
| 34 | 4 | 28½ | 30¾ | ... | 5 + 4 | ... | Glenmuick | Major J. Ponsonby. |
| 34 | 4½ | ... | ... | 36½ | 12 | ... | Glenbruar, Perthshire | Sir W. Ogilvy-Dalgleish, Bart. |
| 33½ | 4½ | ... | 28 | ... | 6 + 6 | ... | Langwell | Duke of Portland. |
| 33½ | 4 | ... | 24½ | ... | 7 + 8 | ... | Ardverikie | E. J. Wythes. |
| 33½ | 5 | ... | 34½ | ... | 5 + 5 | 280 | Dalness | J. G. Millais. |
| 33½ | 4 | 16½ | 25 | 29 | 5 + 5 | ... | Caenlochan | H. C. Pilkington. |
| 33½ | 4½ | 22 | 28 | 30½ | 6 + 5 | ... | Auchnasheen | A. G. Dickson. |
| 33½ | 4½ | ... | 27 | ... | 12 | ... | Kintail | Sir Edmund G. Loder, Bart. |
| 33½ | 5 | ... | 28½ | 34 | 5 + 5 | ... | Barrisdale | Walter Parrott. |
| 33½ | 4½ | 17½ | 28 | 29½ | 5 + 5 | ... | Ardverikie | Col. W. Hall Walker. |
| 33½ | 4½ | ... | 23½ | ... | 6 + 6 | ... | Amisdale | T. Drake. |
| 33 | 4 | 24½ | 31 | 32½ | 10 | ... | Lochrosque | Sir A. Bignold. |
| 33 | 4½ | 8½ | 20¾ | 24½ | 4 + 4 | ... | Ben Alder | Sir Julius Wernher, Bart. |
| 33 | 4½ | 24½ | 28½ | 33½ | 5 + 4 | 222 | Do. | F. C. Selous. |
| 33 | 4½ | 21½ | 28½ | 33 | 4 + 4 | ... | Kintail | R. P. Page. |
| 33 | 4 | 12 | 23½ | 28 | 4 + 3 | ... | Kildonan | Sir William Pearce, Bart. |
| 32½ | 3½ | 24½ | 32 | 34 | 5 + 5 | ... | Glenwal Reay | Lt.-Col. A. Weston Jarvis. |
| 32½ | 5 | 25½ | 29½ | ... | 6 + 6 | ... | Ardverikie | Col. W. Hall Walker. |
| 32½ | 4 | 25 | 31 | 33 | 4 + 3 | ... | Glencarron | H. B. Tate. |
| 32½ | 4½ | 17 | 25½ | 27 | 4 + 3 | 231 | Do. | G. Cornwallis-West. |
| 32½ | 4½ | 15½ | 25 | 25½ | ... | ... | Ben Bhean | D. Astley. |
| 32½ | 4½ | 13½ | 24½ | 28 | 6 + 5 | ... | Breachiore | Sir G. A. Cooper, Bart. |
| 32½ | 5½ | ... | 27 | 34½ | 6 + 6 | 247 | Barrisdale | Walter Parrott. |

- Owner's measurements.

¹ Recorded by J. G. Millais.

RECORDS OF BIG GAME

| Length on out- side curve. | Circum- ference between bez and trez. | Tip to Tip. | Widest inside. | Spread. | Points. | Weight. lbs. | Locality. | Owner. |
|-------------------------------------|---|------------------|-------------------|------------------|---------|-----------------|-------------------------|-------------------------------------|
| -32 $\frac{1}{4}$ | 5 $\frac{1}{2}$ | 20 $\frac{1}{8}$ | 25 $\frac{1}{2}$ | 31 $\frac{5}{8}$ | 7+7 | 225 | Meoble | Walter Jones. |
| -32 | ... | ... | ... | 34 | 10 | ... | Kintail. | Sir Edmund G. Loder, Bart. |
| 32 | 4 | 17 | 27 $\frac{3}{4}$ | 30 | 5+5 | ... | Deanich | J. G. Clarke. |
| 32 | 4 | 20 $\frac{1}{4}$ | 29 $\frac{1}{2}$ | 34 $\frac{1}{4}$ | 6+6 | ... | Lochmore | Duke of Westminster. |
| 32 | 4 $\frac{1}{2}$ | 18 | 26 $\frac{3}{4}$ | 29 $\frac{1}{2}$ | 7+4 | ... | Glenartney | Waldorf Astor. |
| 32 | 4 | 20 | 23 $\frac{3}{4}$ | 27 $\frac{1}{2}$ | 6+6 | ... | Glenfeshie | Hon. H. C. Gibbs. |
| 32 | 4 $\frac{1}{2}$ | 11 $\frac{1}{4}$ | 20 | 24 $\frac{1}{2}$ | 8+5 | ... | Lochmore | Earl of Essex. |
| 31 $\frac{3}{4}$ | 4 $\frac{1}{2}$ | 18 $\frac{3}{4}$ | 27 $\frac{1}{4}$ | 30 $\frac{1}{2}$ | 5+4 | ... | Jura Forest | G. Crake. |
| 31 $\frac{3}{4}$ | 4 $\frac{1}{4}$ | 23 | 28 $\frac{1}{2}$ | 31 $\frac{1}{4}$ | 5+5 | ... | ... | Col. Macdonald of Glen- aladale. |
| 31 $\frac{3}{4}$ | 4 $\frac{1}{2}$ | 17 $\frac{1}{4}$ | 25 | 28 | 5+5 | ... | ... | Mrs. Currie. |
| 31 $\frac{1}{2}$ | 4 | 22 | 26 $\frac{1}{4}$ | 32 $\frac{1}{2}$ | 7+6 | ... | Kintail. | R. P. Page. |
| 31 $\frac{1}{2}$ | 4 $\frac{1}{2}$ | 12 $\frac{1}{2}$ | 22 $\frac{1}{2}$ | 27 | 4+4 | ... | Ardgour | R. F. Fuller. |
| 31 $\frac{1}{2}$ | 4 | 11 $\frac{1}{2}$ | 20 $\frac{3}{4}$ | 27 | 5+5 | ... | Braulen | C. S. Rattigan. |
| 31 $\frac{1}{2}$ | 3 $\frac{1}{2}$ | 22 | 29 $\frac{3}{4}$ | 32 | 5+4 | ... | ... | F. C. Selous. |
| 31 $\frac{1}{2}$ | 4 | 17 $\frac{1}{2}$ | 26 $\frac{1}{2}$ | 30 $\frac{1}{4}$ | 6+4 | ... | ... | Major C. J. Hawker. |
| 31 $\frac{1}{2}$ | 4 $\frac{5}{8}$ | ... | 24 | ... | 6+7 | ... | Coulin. | Sir W. Ogilvy-Dalgleish, Bart. |
| 31 $\frac{1}{4}$ | 4 $\frac{1}{8}$ | 31 $\frac{1}{4}$ | 32 $\frac{1}{4}$ | 34 | 5+5 | ... | Corrievarkie | H. E. Christy. |
| 31 $\frac{1}{2}$ | 4 $\frac{1}{2}$ | 20 | 28 | 31 | 5+4 | ... | North Ben Alder | Sir Charles Elliot, Bart. |
| 31 | 4 $\frac{3}{4}$ | 20 $\frac{1}{2}$ | 25 $\frac{3}{4}$ | 32 | 8+7 | 267 | Coignafern | J. Bradley Firth. |
| 31 | 4 $\frac{1}{2}$ | 16 $\frac{1}{2}$ | 23 $\frac{1}{2}$ | 29 | 6+5 | ... | Inversanda | J. Hamilton Leigh. |
| 31 | 4 $\frac{1}{2}$ | 10 $\frac{1}{2}$ | 21 | 26 | 6+5 | ... | Black hill of Spital | Capt. Lord J. S. Cavendish. |
| -31 | 5 $\frac{1}{2}$ | 32 $\frac{1}{2}$ | ... | 38 | 5+4 | ... | Inverlochy | Mrs. J. E. Platt. |
| 30 $\frac{3}{4}$ | 4 | 22 $\frac{1}{4}$ | 27 $\frac{1}{4}$ | 28 $\frac{1}{2}$ | 6+4 | ... | Glencarron | H. B. Tate. |
| 30 $\frac{3}{4}$ | 3 $\frac{1}{4}$ | 11 $\frac{1}{2}$ | 24 | 26 $\frac{1}{2}$ | 5+6 | ... | Inversanda | Mrs. James Leigh. |
| 30 $\frac{1}{2}$ | 4 | 29 $\frac{3}{4}$ | 33 $\frac{1}{4}$ | 36 $\frac{3}{8}$ | 6+6 | ... | Benmore | Hon. T. A. Brassey. |
| 30 $\frac{1}{2}$ | 3 $\frac{3}{4}$ | 24 | 30 | 31 $\frac{1}{2}$ | 3+3 | ... | Killilan | C. R. Harding. |
| 30 $\frac{1}{2}$ | 4 | 20 | 26 $\frac{1}{2}$ | 28 $\frac{3}{4}$ | 5+5 | ... | Glendoll | O. Partington. |
| 30 $\frac{1}{2}$ | 4 $\frac{1}{2}$ | 19 $\frac{1}{2}$ | 23 $\frac{1}{2}$ | 33 | 8+6 | ... | Rodil, Harris | Lord Dunmore. |
| 30 $\frac{1}{4}$ | 4 $\frac{1}{2}$ | 16 $\frac{1}{4}$ | 25 $\frac{1}{2}$ | 29 | 4+5 | ... | Auchnashellach | E. Morley. |
| 30 | 4 | 11 | 23 $\frac{1}{4}$ | 24 $\frac{1}{2}$ | 4+4 | ... | Ardgour | E. F. Fuller. |
| 30 | 4 $\frac{1}{4}$ | 29 | 31 | 33 $\frac{1}{4}$ | 3+3 | ... | Do. | E. M. Bainbridge. |
| -30 | 4 $\frac{5}{8}$ | ... | 26 $\frac{3}{4}$ | ... | 6+6 | ... | Killilan. | Col. Baldock. |

- Owner's measurements.

The spread of the six widest heads in the Duke of Fife's collection is as follows :—

40 38 37 35 35 35

The six longest antlers of this celebrated collection are respectively—

37 36 $35\frac{1}{2}$ $35\frac{1}{2}$ 35 35

The antlers of one of the red deer in Mr. C. Lucas's park at Warnham Court, Sussex, in 1889, had 34 points; 1890, 34 points; 1891, 37 points; 1892, 47 points, and weighed 17 lbs.; 1893, 45 points, $16\frac{1}{2}$ lbs.

b.—Irish Specimens.

| Length on out- side curve. | Circum- ference between bez and trez. | Tip to Tip. | Widest inside. | Outside spread. | Points. | Weight. lbs. | Locality. | Owner. |
|-------------------------------------|---|------------------|-------------------|--------------------|---------|---|---------------------|-----------------------|
| ¹ 42 $\frac{1}{2}$ | ... | ... | ... | ... | 12 | 315 | Colebrooke | The late Sir Douglas |
| 41 | 6 | 17 $\frac{1}{2}$ | 23 | ... | 10+9 | 325 | Do. | Brooke, Bart. Do. |
| 40 | 5 $\frac{1}{2}$ | 28 | 29 $\frac{1}{2}$ | ... | 8+8 | 355 | Do. | Do. |
| 39 $\frac{5}{8}$ | 5 $\frac{1}{4}$ | 14 $\frac{1}{2}$ | 26 $\frac{3}{4}$ | ... | 7+7 | 375 | Do. | Do. |
| 38 | 5 $\frac{5}{8}$ | 9 $\frac{3}{4}$ | 23 $\frac{3}{4}$ | ... | 8+8 | ... | Roscommon | Earl of Kingston. |
| ² 35 | 5 | 22 | 30 $\frac{1}{4}$ | ... | 6+5 | 343 | Do. | Do. |
| 35 | 4 $\frac{3}{4}$ | ... | 30 | ... | 9 | ... | Ireland | Hon. A. Charteris. |
| 35 | 5 $\frac{1}{8}$ | 19 $\frac{5}{8}$ | 26 $\frac{3}{4}$ | ... | 6+5 | 282 | Powerscourt Park | Viscount Powerscourt. |
| 35 | 5 $\frac{1}{4}$ | 21 $\frac{1}{4}$ | 29 | ... | 5+5 | $\left\{ \begin{array}{l} 336 \text{ as} \\ \text{he fell;} \\ 252 \text{ clean} \end{array} \right.$ | Do. | Do. |
| 34 | 4 $\frac{1}{2}$ | 25 $\frac{1}{2}$ | 28 $\frac{1}{2}$ | ... | 6+6 | $\left\{ \begin{array}{l} 364 \text{ as} \\ \text{he fell;} \\ 280 \text{ clean} \end{array} \right.$ | Do. | Do. |
| 34 | 4 $\frac{3}{4}$ | ... | 31 $\frac{1}{2}$ | ... | 6+5 | 372 | Muckcross | Ralph Sneyd. |
| 34 | 4 $\frac{1}{8}$ | 13 $\frac{1}{8}$ | 25 | ... | 5+5 | ... | Colebrooke | Major J. M. Rogers. |
| 33 | 5 | 20 | 28 $\frac{1}{4}$ | ... | 5+5 | 281 | Glenveagh | W. W. Ashley. |
| 31 $\frac{3}{4}$ | 5 | 25 $\frac{3}{4}$ | 31 $\frac{3}{4}$ | ... | 5+6 | ... | Donegal | Col. W. Hall Walker. |
| 31 | 4 $\frac{3}{4}$ | 11 | 20 $\frac{3}{4}$ | ... | 7+7 | ... | Muckcross | Ralph Sneyd. |
| 31 $\frac{3}{4}$ | 4 $\frac{1}{2}$ | 15 | 25 $\frac{3}{4}$ | 29 $\frac{1}{4}$ | 5+4 | ... | Do. | F. G. Menzies. |
| 31 $\frac{1}{2}$ | 5 | 14 $\frac{3}{8}$ | 25 $\frac{3}{4}$ | 27 $\frac{3}{4}$ | 6+5 | 276 | Do. | C. E. Russell. |
| 31 | 4 | 18 | 26 $\frac{1}{4}$ | 33 $\frac{1}{4}$ | 7+7 | ... | Do. | Do. |

- Owner's measurements.

¹ See Millais's *British Deer and their Horns*.

² Spread, $36\frac{1}{2}$ inches.



Head of Exmoor Red Deer. Capt. H. H. Amory.

c.—West of England Specimens.

| Length on outside curve. | Circum- ference between bez and trez. | Tip to Tip. | Widest inside. | Outside spread. | Points. | Locality. | Owner. |
|-----------------------------------|---|------------------|-------------------|--------------------|---------|-------------------|---------------------------------|
| ¹ 41 | 5 $\frac{1}{4}$ | 21 $\frac{1}{2}$ | 32 $\frac{1}{4}$ | ... | 5+5 | Exmoor | Sir John Heathcoat-Amory, Bart. |
| 40 | 5 $\frac{7}{8}$ | 10 | 28 | 38 | 7+6 | Do. | Do. |
| 39 | 5 $\frac{3}{4}$ | 15 $\frac{3}{4}$ | 28 $\frac{1}{2}$ | ... | 6+6 | Do. | R. A. Sanders. |
| 38 $\frac{1}{2}$ | 5 $\frac{1}{8}$ | 17 $\frac{7}{8}$ | 31 $\frac{1}{2}$ | ... | 6+6 | Quantock Hills | Earl Fortescue; killed in 1885. |
| 37 $\frac{1}{2}$ | 5 | 22 $\frac{1}{4}$ | 30 $\frac{1}{4}$ | ... | 7+7 | Exmoor | C. Nelder; killed in 1803. |
| 37 $\frac{1}{2}$ | 5 $\frac{1}{2}$ | 27 $\frac{1}{2}$ | 35 $\frac{3}{8}$ | 48 | 6+5 | Do. | Sir John Heathcoat-Amory, Bart. |
| 37 $\frac{1}{4}$ | 4 $\frac{3}{4}$ | 20 | 31 $\frac{3}{4}$ | 36 | 6-5 | Quantock | E. A. V. Stanley. |
| 37 | 5 | 23 | 33 $\frac{1}{2}$ | 39 $\frac{3}{4}$ | 6-7 | Bembridge Wood | Capt. H. H. Amory. |

¹ Weight, 333 lbs. clean. Length of brow-tine, 17 inches.

| Length on outside curve. | Circum- ference between bez and trez. | Tip to Tip. | Widest inside. | Outside spread. | Points. | Locality. | Owner. |
|-----------------------------------|---|------------------|-------------------|--------------------|---------|------------|--|
| 36 $\frac{3}{4}$ | 6 | 21 $\frac{1}{2}$ | 28 $\frac{7}{8}$ | ... | 6+7 | Exmoor | Sir A. Acland-Hood, Bart.; killed in 1893. |
| 36 $\frac{1}{2}$ | 5 $\frac{5}{8}$ | 12 | 23 $\frac{5}{8}$ | 30 $\frac{1}{2}$ | 7+6 | Stoodleigh | Ian H. Amory. |
| 36 | 4 $\frac{3}{4}$ | 10 | 24 $\frac{3}{8}$ | 30 $\frac{1}{4}$ | 9+7 | Exmoor | R. A. Sanders. |
| 36 | 5 $\frac{1}{4}$ | 12 $\frac{1}{8}$ | 23 | 29 $\frac{1}{2}$ | 6+5 | Do. | Capt. H. H. Amory. |
| 36 | 5 $\frac{3}{8}$ | 14 $\frac{3}{4}$ | 26 | 34 $\frac{1}{2}$ | 7+6 | Do. | Morland Greig. |
| 35 $\frac{1}{2}$ | 5 | 20 $\frac{3}{8}$ | 27 $\frac{1}{2}$ | ... | 6+6 | Do. | Earl Fortescue; killed in 1812. |
| 35 | 5 | 15 $\frac{3}{4}$ | 27 | ... | 6+5 | Do. | Com. G. F. Inglefield, R.N. |
| 35 | 4 $\frac{7}{8}$ | 25 $\frac{1}{2}$ | 32 $\frac{3}{4}$ | ... | 5+6 | Do. | Sir C. T. D. Acland, Bart.; killed in 1893. |
| 35 | 5 $\frac{1}{2}$ | 19 $\frac{3}{4}$ | 27 $\frac{1}{2}$ | 35 $\frac{3}{4}$ | 8+6 | Do. | E. A. V. Stanley. |
| 35 | 5 $\frac{1}{4}$ | 19 | 28 | 35 | 6+6 | Do. | Capt. H. H. Amory. |
| 35 | 5 | 16 $\frac{3}{4}$ | 25 $\frac{1}{2}$ | 30 $\frac{1}{2}$ | 6+5 | Do. | Ian H. Amory. |
| 34 $\frac{5}{8}$ | 5 $\frac{5}{8}$ | 23 $\frac{1}{4}$ | 31 $\frac{1}{4}$ | ... | 6+6 | Do. | Earl Fortescue; killed in 1881. |

d.—English Park Specimens.

| Length on outside curve. | Circum- ference between bez and trez. | Tip to Tip. | Widest inside. | Spread. | Points. | Weight (clean). | Locality. | Owner. |
|-----------------------------------|---|------------------|-------------------|------------------|---------|--------------------|-----------------|----------------------------------|
| | | | | | | lbs. | | |
| 43 $\frac{1}{2}$ | 5 $\frac{1}{4}$ | 23 $\frac{1}{4}$ | 33 $\frac{1}{2}$ | 51 $\frac{1}{4}$ | 12+9 | ... | Woburn | Duke of Bedford. |
| 42 $\frac{1}{2}$ | 6 $\frac{3}{4}$ | ... | ... | 40 | 12 | ... | Melbury, Dorset | Earl of Ilchester. |
| ¹ 41 $\frac{1}{4}$ | 5 | 22 $\frac{3}{4}$ | 32 | ... | 7+6 | ... | Langley Park | J. G. Millais. |
| 40 $\frac{3}{4}$ | 5 $\frac{1}{2}$ | 18 $\frac{3}{4}$ | 31 | 41 | 5+5 | ... | ? | R. V. Berkeley. |
| 40 | ... | ... | 39 | ... | 32 | ... | ? | J. G. Millais. |
| 40 | 4 $\frac{3}{4}$ | 25 | 33 $\frac{1}{2}$ | 40 $\frac{1}{2}$ | 6+7 | ... | ? | W. Cooper. |
| ¹ 39 $\frac{1}{2}$ | 5 $\frac{3}{4}$ | 23 $\frac{1}{2}$ | 26 $\frac{3}{4}$ | 35 $\frac{3}{4}$ | 5+5 | ... | Woburn | Duke of Bedford. |
| 39 | 5 $\frac{1}{4}$ | 18 $\frac{1}{2}$ | 27 $\frac{3}{4}$ | 33 $\frac{1}{2}$ | 6+6 | ... | ? | W. Cooper. |
| -38 $\frac{1}{4}$ | 5 | 17 | 27 $\frac{1}{4}$ | 32 $\frac{1}{2}$ | 6+6 | ... | Whittlebury | Sir Edmund G. Loder, Bart. |
| 37 $\frac{1}{2}$ | 5 $\frac{1}{2}$ | 22 | 29 $\frac{1}{2}$ | 41 $\frac{1}{2}$ | 8+7 | ... | Stowe | H.R.H. the Duc d'Orléans. |
| -37 $\frac{1}{2}$ | 7 $\frac{1}{2}$ | 29 $\frac{1}{2}$ | 27 $\frac{1}{2}$ | 36 $\frac{1}{2}$ | 10+9 | ... | Welbeck | Duke of Portland. |
| -37 | 7 $\frac{3}{4}$ | ... | ... | 37 | 23 | 434 | Warnham | T. Lucas. |
| 35 $\frac{1}{2}$ | 5 | 22 $\frac{3}{4}$ | 28 $\frac{3}{4}$ | 33 $\frac{1}{4}$ | 6+6 | ... | Wood Norton | H.R.H. the Comtesse de Paris. |
| 35 $\frac{1}{2}$ | 5 | 7 $\frac{1}{2}$ | 20 | 25 | 6+6 | ... | ? | H. S. O'Brien. |

- Owner's measurements.

¹ White Stag.

RECORDS OF BIG GAME

| Length on outside curve. | Circum- ference between bez and trez. | Tip to Tip. | Widest inside. | Spread. | Points. | Weight (clean). | Locality. | Owner. |
|-----------------------------------|---|----------------|-------------------|---------------|---------|--------------------|-----------|-------------------------------|
| 34½ | 7 | 33 | 26¾ | ... | 20+20 | ... | Warnham | W. H. Lucas. |
| 34 | 4½ | ... | 23 | ... | 6+6 | ... | Stowe | H.R.H. the Comtesse de Paris. |
| 34 | 5½ | 21¾ | 28½ | ... | 7+7 | ... | Dorset | Earl of Ilchester. |
| 34 | 6½ | ... | ... | 48 (about) | 45 | ... | Warnham | C. T. Lucas. |
| 34 | 6 | 24½ | 32 | 37½ | 10+10 | ... | ? | Earl of Warwick. |
| 33½ | 4½ | ... | 33 | ... | 6+6 | ... | Stowe | H.R.H. the Duc d'Orléans. |
| 33 | 7 above trez | ... | ... | 45½ | 44 | ... | Warnham | C. T. Lucas. |

Some of the above measurements are recorded by Mr. J. G. Millais in *British Deer and their Horns*.

c.—Ancient British and Irish Specimens.

| Length on outside curve. | Circum- ference between bez and trez. | Tip to Tip. | Widest inside. | Spread. | Points. | Where dug up. | Owner. |
|-----------------------------------|---|----------------|-------------------|---------|---------|--------------------------------------|--------------------------------------|
| -47½ | 8 | 35 | ... | ... | 5+8 | Manchester Ship Canal excavations | Sir R. M. Brooke, Bart. |
| 40 | 7½ | 22¼ | 28½ | 43¼ | 12+9 | Combermere | Duke of Westminster. |
| 38½ | 5 | 18 | 30 | 39¼ | 8+6 | Ireland | Viscount Powerscourt. |
| 38½ | 6¼ | 30 | 36¼ | 45¾ | 7+5 | N. Wales | Sir Richard Williams-Bulkeley, Bart. |
| -37 | 5½ | 23½ | ... | 39¼ | 13+8 | Co. Leitrim | J. Ormsby Lawder. |
| 36½ | 5 | 24 | 25 | 35½ | 8+8 | Ireland | Viscount Powerscourt. |
| 36 | 5½ | 23 | 27 | 37½ | 10+9 | Kerry, Ireland | Do. |
| 35½ | 5¼ | 18½ | 25½ | 32½ | 7+7 | Lincolnshire | C. W. Tindall. |
| 35½ | 5¼ | 26½ | 32¾ | 42½ | 13+11 | South Ireland | Sir Victor Brooke's Col- lection. |
| 35¼ | 5¾ | 31¼ | 27¾ | ... | 12+10 | Ireland | Viscount Powerscourt. |
| -33 | 5¾ | 23¾ | 30 | 38 | 9+8 | Do. | Sir Edmund G. Loder, Bart. |
| 33 | 5¼ | 23 | 28 | 41 | 7+6 | Cardigan Bay | H. Marshall. |
| 30½ | 5 | 10½ | 20 | 24¾ | 9+8 | ? | Duke of Bedford. |

- Owner's measurements.



Antlers of Ancient British Red Deer,
belonging to Sir Richard Williams-Bulkeley, Bart.

f.—Norwegian Specimens (C. e. atlanticus).

| Length on outside curve. | Circum- ference between bez and trez. | Tip to Tip. | Widest inside. | Spread. | Points. | Weight. lbs. | Locality. | Owner. |
|-----------------------------------|---|------------------|-------------------|------------------|---------|-----------------|------------|--------------------|
| 34 $\frac{1}{4}$ | 6 $\frac{1}{2}$ | ... | ... | 34 $\frac{5}{8}$ | ... | ... | Norway . . | J. S. Brunn. |
| 34 | ... | ... | ... | ... | 7 | ... | Do. . . | J. H. Thomas. |
| 31 $\frac{3}{4}$ | 4 $\frac{3}{4}$ | ... | 25 $\frac{1}{2}$ | ... | 6+5 | ... | Do. . . | A. Brassey. |
| 31 $\frac{1}{2}$ | 4 $\frac{1}{2}$ | ... | 24 $\frac{1}{2}$ | ... | 5+5 | ... | Do. . . | Sir H. Seton-Karr. |
| 31 $\frac{1}{2}$ | 4 $\frac{3}{4}$ | ... | 28 | ... | 4+3 | ... | Do. . . | E. M. Denny. |
| 31 | 4 $\frac{1}{4}$ | 23 | 25 | 29 $\frac{1}{2}$ | 6+6 | ... | Do. . . | J. H. Thomas. |
| 30 | 5 | ... | 29 | ... | 12 | 280 | Do. . . | E. M. Denny. |
| 30 | 4 $\frac{1}{4}$ | 29 $\frac{1}{4}$ | 30 $\frac{3}{4}$ | 33 | 5+4 | ... | Do. . . | Sir H. Seton-Karr. |
| 29 $\frac{1}{4}$ | 4 $\frac{5}{8}$ | 26 | 30 $\frac{1}{4}$ | ... | 6+5 | ... | Do. . . | G. L. Denman. |
| 26 $\frac{1}{2}$ | 4 $\frac{1}{4}$ | 30 $\frac{3}{4}$ | 26 $\frac{1}{2}$ | 33 $\frac{1}{4}$ | 6+6 | ... | Do. . . | J. H. Thomas. |

. Owner's measurements.



Skull and Antlers of Eastern Red Deer shot by Prince Henry of Liechtenstein at Tartarow, Galicia, 1895. Length of antler, 46 inches. Weight, 20 lbs. 14 oz.



Skulls and Antlers of Eastern Red Deer killed on the estate of Prince Henry of Liechtenstein at Tartarow, Galicia.



Head of Spanish Red Deer,
shot by H. R. H. Prince Arthur of Connaught.

g.—Spanish Specimens (C. e. var.).

| Length on outside curve. | Circum- ference between bez and trez. | Tip to Tip. | Widest inside. | Spread. | Points. | Locality. | Owner. |
|-----------------------------------|---|----------------|-------------------|---------|---------|-----------------------|---|
| 43 | 5½ | 15½ | 33½ | 35 | 6+6 | Sierra Morena . . | J. M. Power. |
| ¹ -40 | ... | ... | 36½ | ... | 17 | Do. . . | Abel Chapman. |
| -37½ | ... | ... | 34½ | ... | 15 | Do. . . | Do. |
| 36 | 4½ | 26 | 33½ | 37½ | 7+6 | ? . . | H. R. H. Prince Arthur of Connaught. |
| 33 | 4½ | 21½ | 30 | 37 | 13 | ? . . | Prince E. Demidoff. |
| -32½ | ... | ... | ... | ... | 13 | Plains of Andalucia . | W. J. Buck. |
| -31 | 4½ | 28 | ... | ... | 15 | Coto Doñana . . | P. Garvey. |
| -29 | 5½ | ... | 25 | ... | 12 | Andalucia . . | Abel Chapman. |
| -28½ | 5½ | ... | 26½ | ... | 13 | Do. . . | Do. |
| -25½ | 4 | 24 | 24½ | 27½ | 6+5 | Coto Doñana . . | Do. |
| -23 | 4½ | 29½ | 22½ | ... | 12 | Do. . . | J. C. Chapman. |
| 22½ | 4½ | 21½ | 19 | ... | 12 | Do. . . | B. F. Buck. |

— Owner's measurements.

¹ A mountain head. There are two races in Spain. By far the largest are those of the "sierras" (or mountains), where good heads run from 30 to 40 inches. The stags of the "cotos" (or wooded plains) seldom reach, and rarely exceed, 30 inches in antler-length, and the heaviest weighed 205 lbs. clean.



Eastern Red Deer Antlers. In the collection of His Majesty the Emperor of Austria.

h.—Other Continental Specimens.

The specimens in this list from Eastern Europe probably belong to the Carpathian and Eastern races.

| Number of points. | Weight avoirdupois. lbs. oz. | Length along curve. | Circum- ference of burr. | Circum- ference above burr. | Circumfer- ence above middle point. | Circumfer- ence below crown. | Circum- ference between bez and trez. | Tip to Tip. | Widest inside. | Spread. | Weight of stag. lbs. | Locality. | Owner. |
|-------------------|------------------------------------|---------------------------|--------------------------------|--------------------------------------|--|------------------------------------|--|------------------|-------------------|------------------|----------------------------|----------------------|--|
| 16 | 23 6 $\frac{1}{2}$ | 53 $\frac{5}{8}$ | 9 $\frac{7}{8}$ | 8 $\frac{3}{8}$ | 7 $\frac{1}{8}$ | 7 $\frac{1}{8}$ | ... | ... | ... | ... | 526 | Zemplen, Hungary | Count Gèza Andrassy. |
| -18 | over 20 lbs. | 53 $\frac{9}{16}$ | 11 $\frac{1}{4}$ | 10 | ... | 15 $\frac{1}{2}$ | 10 | ... | ... | ... | 453 | Galicia | H.R.H. D. Miguel, Duke of Braganza. |
| 11 | ... | 52 $\frac{1}{4}$ | ... | ... | ... | ... | 6 $\frac{5}{8}$ | 14 $\frac{1}{4}$ | 34 $\frac{1}{2}$ | 40 | ... | Transylvania | Rhys Williams. |
| -18 | 20 5 | 52 | ... | ... | ... | ... | 7-25 | ... | 32-75 | 45 | 504 | Galicia | E. N. Buxton. |
| -18 | 19 1 | 51 $\frac{5}{16}$ | 10 $\frac{5}{8}$ | 8 $\frac{1}{4}$ | 6 $\frac{11}{16}$ | 8 $\frac{1}{4}$ | ... | ... | ... | ... | ... | Unghvar | Count Béla Széchenyi. |
| -14 | 23 0 | 51 | 11 | 8 $\frac{1}{2}$ | 7 | 9 | 7-20 | 27 | 38 | 47 | 519 | Zemplen Comitat | Count Gèza Andrassy. |
| 1 14 | ... | 51 | ... | ... | ... | ... | 7-25 | 23-5 | 39-5 | 50 | ... | Hungary | Viscount Powerscourt. |
| -16 | ... | 50 $\frac{1}{16}$ | 11 $\frac{1}{16}$ | ... | ... | ... | ... | ... | ... | ... | ... | Do. | Count Gèza Andrassy |
| -21 | 21 3 | 50-4 | ... | 6-08 | ... | ... | ... | 30 | ... | 55-9 | ... | Pilis Moun- tains | Duke of Ratibor. |
| -14 | 20 8 | 50 | 11 $\frac{1}{16}$ | 9 $\frac{1}{2}$ | 7 $\frac{1}{16}$ | 6 $\frac{1}{4}$ | ... | ... | ... | ... | 418 | Hungary | Archduke Frederick. |
| -14 | ... | 50 | ... | ... | ... | ... | 6 | 42 | 40 | ... | ... | La Mandria | J. I. S. Whittaker. |
| -18 | ... | 50 | ... | ... | ... | ... | 7 $\frac{1}{2}$ | ... | ... | 48 | ... | Galicia | Rudolph Pick. |
| -10 | ... | 50 | 10 $\frac{1}{4}$ | 7 $\frac{5}{8}$ | ... | 6 $\frac{1}{4}$ | ... | ... | ... | ... | ... | Hungary | Count Béla Széchenyi. |
| -14 | 31 and an oz. or two | 49 $\frac{3}{8}$ | ... | ... | ... | ... | ... | ... | 39 $\frac{3}{8}$ | ... | ... | Radauc | Prince Lulu Rohan. |
| -16 | 20 0 | 49-6 | 10-8 | 9-3 | 7-11 | 9-7 | 6-8 | 55-4 | 43-11 | ... | 433 | Hungary | Count Rudolf Erdödy. |
| -18 | ... | 49 $\frac{1}{8}$ | 10 $\frac{1}{4}$ | 9 $\frac{1}{16}$ | 6 $\frac{1}{16}$ | 9 $\frac{1}{8}$ | ... | ... | ... | 48 $\frac{7}{8}$ | 354 | Do. | Count Joseph Hoyos. |
| -12 | 21 0 | 49 | 10 $\frac{5}{16}$ | ... | ... | ... | ... | ... | ... | ... | ... | Do. | Prince Philip of Saxe-Coburg and Gotha. |
| -16 | ... | 49 | ... | ... | ... | ... | ... | ... | ... | 43 | ... | Galicia | Prince Henry of Liechten- stein. |
| -20 | 25 3 | 48-8 | ... | ... | ... | ... | ... | ... | ... | ... | ... | S.W. Hun- gary | Prince Hugo Windischgrätz. |

| | | | | | | | | | | |
|-----|--------|-------|-------|------|------|-----|-----|-----|---------------|---|
| 14 | ... | 48½ | ... | ... | 6½ | 34 | 30 | 37½ | Carpathians | Lieut.-Col. L. Marshall. |
| -19 | ... | 48 | ... | 8½ | ... | ... | ... | ... | Moravia | Prince John of Liechtenstein. |
| -19 | ... | 48 | ... | 9 | ... | ... | 27 | 48 | Gotha | H.R.H. the Duke of Saxe-Coburg and Gotha. |
| 20 | ... | 48 | ... | ... | 6½ | 33½ | 41½ | 51½ | Germany | Viscount Powerscourt. |
| 18 | ... | 48 | ... | ... | 7 | 38 | 43 | 58 | Hungary | Do. |
| -14 | 23 0 | 48 | 10 | 9½ | 7½ | 13 | 25 | 32 | Galicia | H.R.H. D. Miguel, Duke of Braganza. |
| -16 | 20 9½ | 47½ | 11 1½ | 9½ | ... | ... | ... | ... | Hungary | Prince Philip of Saxe-Coburg and Gotha. |
| -16 | ... | 47½ | 11½ | 8½ | ... | 35½ | 25½ | 29½ | Do. | Count Ferdinand Trauttmansdorff. |
| -13 | ... | 47 | ... | ... | 6½ | 12½ | 31½ | ... | Galicia | A. von André. |
| -16 | ... | 46½ | ... | ... | ... | ... | ... | ... | Hungary | Antal Réh. |
| -12 | ... | 46½ | 11½ | 10½ | ... | ... | ... | ... | Do. | Count Esterhazy. |
| -18 | 19 13 | 46½ | 11 | 9½ | 7½ | ... | ... | ... | S.W. Hun-gary | Count László Májláth. |
| -16 | 22 14½ | 46½ | 12½ | ... | ... | ... | ... | ... | N.E. Hun-gary | Head-keeper Ganovszky. |
| 20 | 20 13 | 46½ | 9½ | 7½ | 7½ | ... | ... | ... | Do. | Count Francis Nádasdy. |
| 16 | 19 6 | 46½ | 9½ | 8½ | 6½ | ... | ... | ... | S.W. Hun-gary | Count László Májláth. |
| 14 | ... | 46½ | 10½ | 9½ | 6½ | ... | ... | ... | Hungary | Gaspar Geiszt. |
| -14 | ... | 46½ | 9½ | 8½ | 6½ | ... | ... | ... | Do. | Count Pal Dégenfeld. |
| 16 | 20-68 | 46-46 | 11-02 | 9-45 | 6-89 | ... | ... | ... | Do. | Prince Victor Ratibor. |
| -22 | ... | 46½ | 9½ | 9½ | 6½ | 52½ | 39½ | 42½ | Do. | Count Max Hoyos. |
| 20 | 22 9 | 46½ | 10½ | 9½ | 8½ | ... | ... | ... | Do. | Count Béla Széchényi. |
| -14 | 17 11½ | 46½ | 9½ | 8½ | 6½ | ... | ... | ... | ? | Count Jenő Zichy. |
| -16 | 19-91 | 46-06 | 11-81 | 9-25 | 6-89 | ... | ... | ... | Hungary | Count Mitrowszky. |
| 14 | ... | 46 | ... | ... | ... | ... | 36 | ... | Galicia | Prince Henry of Liechtenstein. |

OWEN'S MEASUREMENTS. Many of these specimens are uneven pointers.

1 Dug up.

| Number of points. | Weight, avoirdupois, lbs. oz. | Length along curve. | Circumference of burr. | Circumference above burr. | Circumference above middle point. | Circumference below crown. | Circumference between bez and trez. | Tip to Tip. | Widest inside. | Spread. | Weight of stag, lbs. | Locality. | Owner. |
|-------------------|-------------------------------|---------------------|------------------------|---------------------------|-----------------------------------|----------------------------|-------------------------------------|-------------------|------------------|------------------|----------------------|---------------|---|
| 18 | ... | 46 | ... | 9 | ... | ... | ... | ... | 36 | 60 | ... | Gotha | H. R. H. the Duke of Saxe-Coburg and Gotha. |
| 13 | ... | 46 | ... | ... | ... | ... | 7 $\frac{1}{2}$ | ... | 29 $\frac{1}{2}$ | 37 | ... | Carpathians | Prince Altenburg. |
| 18 | ... | 46 | 10 | ... | ... | ... | ... | ... | 35 | 54 $\frac{1}{2}$ | ... | Bukovina | Count Erbach. |
| 16 | ... | 45 $\frac{3}{4}$ | 10 $\frac{3}{4}$ | 9 $\frac{1}{2}$ | ... | 6 $\frac{3}{4}$ | ... | ... | ... | ... | ... | Hungary | Count Emil Széchényi. |
| 10 | ... | 45 $\frac{1}{2}$ | 10 | 8 $\frac{5}{8}$ | ... | 7 $\frac{1}{8}$ | ... | ... | ... | ... | ... | Do. | Albert Tuhász. |
| 10 | 19 10 $\frac{1}{2}$ | 45 $\frac{1}{2}$ | 11 $\frac{1}{10}$ | 9 $\frac{7}{8}$ | 7 $\frac{1}{10}$ | 7 $\frac{1}{10}$ | ... | ... | ... | ... | ... | Do. | Count Michael Esterhazy. |
| 14 | 19 11 $\frac{1}{2}$ | 45 $\frac{1}{2}$ | 10 $\frac{5}{8}$ | 9 $\frac{1}{2}$ | 7 $\frac{1}{10}$ | 8 $\frac{1}{2}$ | ... | ... | ... | ... | ... | Do. | Archduke Joseph Augustus. |
| 16 | 19 8 | 45 $\frac{1}{2}$ | 11 | 9 $\frac{1}{2}$ | 6 $\frac{1}{10}$ | 7 $\frac{1}{2}$ | ... | ... | ... | ... | ... | Do. | Head-keeper Ganovszky. |
| -17 | 23 $\frac{1}{2}$ | 45 $\frac{1}{2}$ | 11 | 9 $\frac{3}{4}$ | 7 | 8 | 7 $\frac{1}{4}$ | 41 $\frac{3}{4}$ | 42 $\frac{1}{2}$ | 49 | ... | Do. | Sir Edmund G. Loder, Bart. |
| 14 | ... | 45 $\frac{3}{8}$ | 9 $\frac{1}{4}$ | 8 $\frac{5}{8}$ | 6 $\frac{3}{8}$ | 7 $\frac{3}{8}$ | ... | 15 $\frac{3}{4}$ | ... | 32 | ... | Do. | Dr. Albert von Stephani. |
| 24 | 23 4 | 45 $\frac{5}{16}$ | 10 $\frac{5}{8}$ | 8 $\frac{5}{8}$ | 7 $\frac{1}{2}$ | 7 $\frac{1}{2}$ | ... | ... | ... | ... | ... | Do. | Count T. Eltz. |
| 12 | 20 8 | 45 $\frac{1}{16}$ | 9 $\frac{1}{10}$ | 6 $\frac{5}{16}$ | 6 $\frac{1}{10}$ | 7 $\frac{1}{2}$ | ... | ... | ... | ... | 57 $\frac{1}{2}$ | Do. | Count Béla Széchényi. |
| 12 | 20 6 | 45 $\frac{5}{16}$ | 11 $\frac{1}{2}$ | 9 $\frac{1}{16}$ | 7 $\frac{1}{8}$ | 6 $\frac{1}{4}$ | ... | ... | ... | ... | 640 | Do. | Archduke Joseph Augustus. |
| -20 | 17-05 | 45-27 | 10-04 | 8-07 | 7-28 | 7-48 | ... | ... | ... | ... | ... | Do. | Count George Erdöly. |
| 14 | 19 8 | 45 $\frac{1}{2}$ | 10 $\frac{1}{16}$ | 8 $\frac{3}{8}$ | 6 $\frac{1}{10}$ | 6 $\frac{1}{10}$ | ... | ... | ... | ... | 433 | Do. | Archduke Joseph Augustus. |
| 15 | ... | 45 $\frac{1}{2}$ | 9 $\frac{3}{4}$ | ... | ... | ... | ... | 23 $\frac{5}{8}$ | 34 $\frac{1}{4}$ | ... | ... | Rumania | Prince Demeter Ghika. |
| -22 | 28 10 | 45 $\frac{1}{2}$ | 12 | 9 $\frac{5}{8}$ | 7 | 14 $\frac{3}{16}$ | 8 $\frac{3}{4}$ | 29 $\frac{5}{16}$ | 34 $\frac{1}{4}$ | ... | ... | Hungary | Prince Montenuovo. |
| -14 | ... | 45 | 9 | 7 $\frac{1}{2}$ | 5 $\frac{1}{2}$ | 9 | 6 | 18 $\frac{3}{4}$ | 34 $\frac{1}{2}$ | 41 $\frac{1}{2}$ | ... | ? | W. H. Wilson. |
| -11 | ... | 45 | 8 $\frac{1}{2}$ | 7 $\frac{3}{4}$ | ... | ... | 5 $\frac{3}{4}$ | 21 $\frac{1}{2}$ | 33 | 41 | ... | Galicia | Prince E. Demitloffi. |
| 14 | ... | 44 $\frac{1}{2}$ | 10 $\frac{1}{4}$ | 9 $\frac{1}{4}$ | ... | 5 $\frac{1}{4}$ | ... | ... | ... | ... | ... | Hungary | Archduke Frederick. |
| 14 | ... | 44 $\frac{1}{2}$ | ... | ... | ... | ... | 6 | 30 $\frac{1}{4}$ | 29 $\frac{1}{4}$ | 39 | ... | Do. | Hon. Walter Rothschild. |
| 22 | 20 4 $\frac{1}{2}$ | 44 $\frac{1}{2}$ | 12 $\frac{3}{16}$ | 10 $\frac{1}{4}$ | 7 $\frac{1}{16}$ | 6 $\frac{1}{4}$ | ... | ... | ... | ... | 418 | Do. | Archduke Frederick. |
| -20 | 15-73 | 44-49 | 9-05 | 7-87 | 9-05 | 12-21 | ... | ... | ... | ... | ... | S. W. Hungary | Count Tassilo Festetics. |

| | | | | | | | | | | | |
|-----|---------------------|------------------|------------------|------------------|-----------------|-----------------|-----------------|------------------|------------------|--------------------|---|
| 14 | 10'17 | 44'49 | 10'03 | 9'45 | 6'49 | 8'07 | ... | ... | ... | N. Hungary | Count Béla Széchenyi. |
| 10 | ... | 44 $\frac{1}{2}$ | ... | ... | ... | ... | ... | 40 | ... | Transylvania S. IL | Whitbread. |
| 12 | 18' 3 | 44 $\frac{1}{2}$ | 11 $\frac{1}{2}$ | 9 $\frac{1}{2}$ | 7 $\frac{1}{2}$ | 6 $\frac{1}{2}$ | ... | ... | 352 | S.W. Hungary | Archduke Frederick. |
| 122 | 18' 4 $\frac{1}{2}$ | 44 $\frac{1}{2}$ | 10 $\frac{1}{2}$ | 9 $\frac{1}{2}$ | 6 $\frac{1}{2}$ | 7 $\frac{1}{2}$ | ... | ... | ... | N. Hungary | Prince Philip of Saxe-Coburg and Gotha. |
| 8 | 17'38 | 44'09 | 11'41 | 9'84 | 7'68 | 7'68 | ... | ... | ... | Carpathians | Count Michael Esterházy. |
| 14 | 18'37 | 44'09 | 11'41 | 10'24 | 7'28 | 6'89 | ... | ... | ... | Do. | Jeno Kund. |
| 10 | ... | 44 $\frac{1}{2}$ | 10 $\frac{1}{2}$ | 10 $\frac{1}{2}$ | ... | 6 $\frac{1}{2}$ | ... | ... | ... | Hungary | Count Fer. Nádasdy. |
| 12 | ... | 44 | ... | ... | ... | ... | 5 $\frac{3}{4}$ | 25 $\frac{1}{4}$ | 36 $\frac{1}{4}$ | Sesawski Dohha | J. Hamilton Leigh. |
| 18 | 19'14 | 43'7 | 10'04 | 8'46 | 7'09 | 9'64 | ... | ... | ... | Hungary | Count Rudolf Erdödy. |
| 14 | 20'24 | 43'7 | 10'43 | 8'27 | 7'09 | 7'28 | ... | ... | ... | Do. | F. Pausinger. |
| 20 | 18' 0 | 43'0 | 10'02 | 8'03 | ... | 12'23 | 7'64 | 36'06 | 25'12 | Do. | Count Tassilo Festetics. |
| 12 | ... | 43 $\frac{1}{2}$ | 11 | ... | 6 $\frac{1}{2}$ | 5 $\frac{1}{2}$ | 6 $\frac{1}{2}$ | 15 | 29 $\frac{1}{2}$ | Galicia | A. von André. |
| 14 | ... | 43 $\frac{3}{4}$ | 9 $\frac{1}{2}$ | 8 $\frac{1}{2}$ | ... | 6 $\frac{1}{2}$ | ... | ... | ... | Hungary | Count Tassilo Festetics. |
| 20 | 17'0 | 43'31 | 10'04 | 8'07 | 7'28 | 8'27 | ... | ... | ... | Do. | Do. |
| 14 | 20' 1 $\frac{1}{2}$ | 42 $\frac{1}{2}$ | 9 $\frac{1}{2}$ | 8 $\frac{1}{2}$ | 7 $\frac{1}{2}$ | 7 $\frac{1}{2}$ | ... | ... | 484 | Do. | Count B. Keglevich. |
| 16 | 22' 0 $\frac{1}{2}$ | 42 $\frac{1}{2}$ | 12 $\frac{1}{2}$ | 10 $\frac{1}{2}$ | 7 $\frac{1}{2}$ | ... | ... | ... | 446 | Do. | Count László Májth. |
| 20 | ... | 42 $\frac{1}{2}$ | 9 $\frac{1}{2}$ | 8 $\frac{1}{2}$ | 7 $\frac{1}{2}$ | 9 $\frac{1}{2}$ | ... | 47 $\frac{1}{2}$ | 29 $\frac{1}{2}$ | Do. | Count Henry Fünfkirchen. |
| 16 | 16'00 | 42'91 | 9'84 | 8'27 | 6'09 | 7'00 | ... | ... | ... | Do. | G. Jankovich. |
| 18 | 20'5 | 42'8 | 10'4 | 8'9 | 8'1 | 11 | 8 | 51'6 | 39'1 | Do. | Count Rudolf Erdödy. |
| 18 | 19' 1 | 42'7 | ... | 8'5 | ... | ... | ... | ... | ... | Szilvás | Count Bombelles. |
| 20 | 20' 1 $\frac{1}{2}$ | 42 $\frac{1}{2}$ | 10 $\frac{1}{2}$ | 9 $\frac{1}{2}$ | 7 $\frac{1}{2}$ | 7 $\frac{1}{2}$ | ... | ... | 363 | Hungary | Archduke Frederick. |
| 11 | ... | 42 $\frac{1}{2}$ | ... | ... | ... | ... | 6 | 38 | 43 $\frac{1}{4}$ | Galicia | Prince E. Demidoff. |
| 18 | ... | 42 $\frac{1}{2}$ | 10 $\frac{1}{2}$ | 8 $\frac{1}{2}$ | ... | 6 $\frac{1}{2}$ | ... | ... | ... | Rapoli | Marquis Pallavicini. |
| 20 | ... | 42'3 | 9'1 | 8'5 | ... | ... | ... | ... | ... | Galicia | Count Széchenyi. |

- Owner's measurements. Many of these specimens are uneven pointers.

1 "Picked-up" specimen.

2 Brow-points 20 in. long.

| Number of points. | Weight avoirdupois, lbs. oz. | Length along curve. | Circum- ference of burr. | Circum- ference above burr. | Circumfer- ence above middle point. | Circumfer- ence below crown. | Circum- ference between bez and trez. | Tip to Tip. | Widest inside. | Spread. | Weight of stag. lbs. | Locality. | Owner. |
|-------------------|------------------------------------|---------------------------|--------------------------------|--------------------------------------|--|------------------------------------|--|--------------------|--------------------|--------------------|----------------------------|-----------------------|---|
| -16 | 17 6 | 42'13 | 11'61 | 10'24 | 7'09 | 7'68 | ... | ... | ... | ... | 583 | Carpathians | Count Fer. Nádasdy. |
| -20 | 18 8 | 42'1 | ... | 9'1 $\frac{1}{2}$ | ... | ... | ... | ... | ... | ... | ... | Munkacs | Count Jose Hoyos. |
| -10 | ... | 42'1 $\frac{1}{2}$ | 7 | 5'1 $\frac{1}{2}$ | ... | ... | 5'1 $\frac{1}{2}$ | 11'1 $\frac{1}{2}$ | 30'1 $\frac{1}{2}$ | 32'1 $\frac{1}{2}$ | ... | Styria | Sir Clement Hill. |
| -18 | ... | 42'1 $\frac{1}{2}$ | 9'4 | 8'1 $\frac{1}{2}$ | ... | 6'1 $\frac{1}{2}$ | ... | ... | ... | ... | ... | Hungary | Archduke Frederick. |
| -12 | ... | 42'1 $\frac{1}{2}$ | 9'1 $\frac{1}{2}$ | 9'1 $\frac{1}{2}$ | ... | 6'1 $\frac{1}{2}$ | ... | ... | ... | ... | ... | Do. | Count László Májláth. |
| 12 | ... | 42 | ... | ... | ... | ... | ... | ... | 35'1 $\frac{1}{2}$ | 40 | ... | Galicia | E. N. Buxton. |
| 17 | 18 0 | 42 | 8'8 | ... | ... | ... | ... | 42 | ... | ... | ... | ? | Count Henry Coudenhove. |
| 12 | ... | 41'3 | ... | ... | ... | ... | 5'1 $\frac{1}{2}$ | ... | 25'1 $\frac{1}{2}$ | ... | ... | Germany | British Museum. |
| 18 | 18 3 | 41'3 | 10'1 $\frac{1}{2}$ | 8'1 $\frac{1}{2}$ | 7'1 $\frac{1}{2}$ | 7'1 $\frac{1}{2}$ | ... | ... | ... | ... | 391 | Hungary | Archduke Frederick. |
| 18 | 22 11 | 41'2 | 10'1 $\frac{1}{2}$ | 9'1 $\frac{1}{2}$ | 7'1 $\frac{1}{2}$ | 8'1 $\frac{1}{2}$ | ... | ... | ... | ... | 429 | Do. | Do. |
| 18 | 19 2'1 $\frac{1}{2}$ | 41'2 | 10'1 $\frac{1}{2}$ | 9'1 $\frac{1}{2}$ | 7'1 $\frac{1}{2}$ | 6'1'1 $\frac{1}{2}$ | ... | ... | ... | ... | 330 | Do. | Do. |
| -18 | 18'26 | 41'73 | 10'24 | 9'25 | 7'09 | 8'07 | ... | ... | ... | ... | ... | Do. | Count Fer. Nádasdy. |
| 12 | ... | 41'1 $\frac{1}{2}$ | ... | ... | ... | ... | 5'1 $\frac{1}{2}$ | 22'1 $\frac{1}{2}$ | 32 | ... | ... | Do. | H. R. H. the Duc d'Orléans. |
| -14 | 20 0 | 41 | ... | 10'1 $\frac{1}{2}$ | 7'1 $\frac{1}{2}$ | 9'1'1 $\frac{1}{2}$ | ... | ... | 31'1 $\frac{1}{2}$ | ... | ... | Do. | Prince Philip of Saxe-Coburg and Gotha. |
| -12 | 21'01 | 40'94 | 12'21 | 10'63 | 7'09 | 8'27 | ... | ... | ... | ... | 552 | Do. | Do. |
| -11 | ... | 40'8 | ... | ... | ... | 8'1 $\frac{1}{2}$ | ... | 28'3 | 31'1 $\frac{1}{2}$ | ... | ... | Rumania | Prince Nicholas Ghika. |
| 26 | 18 3 | 40'1'1 $\frac{1}{2}$ | 10'3 | 8'1'1 $\frac{1}{2}$ | 6'1'1 $\frac{1}{2}$ | ... | ... | ... | ... | ... | ... | Hungary | Count Michael Esterhazy. |
| 11 | 12'1 $\frac{1}{2}$ | 40'1 $\frac{1}{2}$ | ... | ... | ... | ... | 5'1 $\frac{1}{2}$ | 29'1 $\frac{1}{2}$ | 35'1 $\frac{1}{2}$ | 44 | ... | Do. | J. D. Cobbold. |
| -13 | ... | 40'1 $\frac{1}{2}$ | ... | ... | ... | ... | 5 | 20'1 $\frac{1}{2}$ | 27'3 | ... | ... | Tyrol | H. R. H. the Duke of Saxe-Coburg and Gotha. |
| -20 | 18'50 | 40'10 | ... | 8'10 (?) | ... | ... | ... | ... | ... | ... | ... | Agarév, S.W. Hungary. | Count Tassilo Festetics. |
| 20 | 20 4'1 $\frac{1}{2}$ | 40'1'1 $\frac{1}{2}$ | 10'1 $\frac{1}{2}$ | 9'1'1 $\frac{1}{2}$ | 7'1'1 $\frac{1}{2}$ | 9'1'1 $\frac{1}{2}$ | ... | ... | ... | ... | 455 | Hungary | Archduke Joseph Augustus. |

| | | | | | | | | | | | |
|-----|-------|-----|-----|-----|-----|-----|-----|-----|-------------|-------------------------|---|
| 13 | ... | 40 | ... | ... | 5½ | 17¾ | 26½ | 33½ | ... | Hungary | St. George Littledale. |
| -18 | ... | 40 | 10 | ... | ... | ... | 28 | 49 | ... | Gotha | H.R.H. the Duke of Saxe-Coburg and Gotha. |
| 10 | ... | 40 | ... | ... | ... | 28½ | 33½ | 45½ | ... | Moravia | G. D. Whatman. |
| 13 | ... | 40 | ... | ... | ... | 29½ | 36½ | 44½ | ... | Germany | Sir Edmund G. Loder, Bart. |
| 15 | ... | 39½ | 10 | 9½ | 6½ | 7½ | 30½ | 37½ | ... | Hungary | A. von André. |
| 10 | 14½ | 39½ | ... | ... | ... | 6½ | 33 | 37½ | ... | Do. | A. N. Hall. |
| -14 | 22 0½ | 38½ | 12⅓ | 10½ | 8½ | ... | ... | ... | 433 | Do. | Prince Philip of Saxe-Coburg and Gotha. |
| -22 | 21 13 | 38½ | 11⅓ | 9⅓ | 7½ | 8½ | ... | ... | ... | S.W. Hungary | Count Tassilo Festetics. |
| -14 | ... | 37 | ... | ... | ... | 5½ | 30 | ... | ... | gary Macedonia | H. J. Elwes. |
| -20 | ... | 36½ | 10½ | 7½ | ... | 7½ | ... | ... | ... | Hungary | Prince Philip of Saxe-Coburg and Gotha. |
| 10 | ... | 31½ | ... | ... | ... | 4½ | 12 | 18½ | ... | Tenuta la Mandria. | H.R.H. the Duc d'Orléans. |
| -44 | 19 0½ | 30 | ... | ... | ... | ... | ... | 44½ | 342 (clean) | Rominten, N.E. Germany. | H.I.M. the German Emperor. |

- Owner's measurements. Many of these specimens are uneven pointers.

FOUR GERMAN RED DEER IN THE COLLECTION OF VISCOUNT POWERSCOURT.

| | No. 1. ins. | No. 2. ins. | No. 3. ins. | No. 4. ins. | | No. 1. ins. | No. 2. ins. | No. 3. ins. | No. 4. ins. |
|-----------------------------|----------------|----------------|----------------|----------------|-----|-----------------------------|----------------|----------------|----------------|
| Greatest width | . | . | 40½ | 48 | 43 | Length of trez-time (right) | . | 14 | 20 |
| Length of antlers | . | . | 42½ | 52½ | 45½ | Do. do. (left) | . | 14 | 22½ |
| Length of brow-time (right) | . | . | 13½ | 17½ | 7½ | Number of points (right) | . | 7 | 11 |
| Do. do. (left) | . | . | 12 | 18½ | 15 | Do. do. (left) | . | 11 | 10 |
| Length of bez-time (right) | . | . | 16½ | 12½ | 8½ | Circumference | . | 7½ | 10½ |
| Do. do. (left) | . | . | 16 | 13½ | 9 | | | 7½ | 8½ |

The late Viscount Powerscourt informed me that the 18 stag heads in the entrance hall at Powerscourt, mounted on papier-maché heads, were bought at Munich in 1863, by the advice of the late Count Arco-Zinneberg, the owner of the famous collection in the Wittelsbacher Platz at Munich. The hall in which Count Arco-Zinneberg's collection hangs contains upwards of 2500 heads of German red-deer and roe-deer of extraordinary weight and size, forming, with the one exception of the King of Saxony's collection at Moritzburg, near Dresden, perhaps the finest in the world. Count Arco became so well known as a collector that every fine specimen was brought to him for purchase. Count Erbach's collection at Erlbach in the Odenwald is also one of the finest in Germany.



Interlocked Antlers of Eastern Red Deer found near Juharos, Hungary, 1875.
In the Collection of His Majesty the Emperor of Austria.

Hungary, 1868.



Styria, 1881.



Hungary, 1873.



Hungary, 1873.

Carpathian or Eastern Red Deer heads belonging to His Majesty the Emperor of Austria.

Eastern Red Deer heads in the possession of His Imperial Majesty the Emperor of Austria.

Specimens from the Plains of Hungary.

| Date. | Tips. | Length. | | Tip to Tip. | Widest | | Circumference | | Locality. |
|---------------------|-------|----------------|------------------------|-------------|---------|----------|---------------|----------|---------------|
| | | Outside curve. | Burr to highest point. | | Inside. | Outside. | of Antler. | of Burr. | |
| 24th September 1874 | 6+7 | 41½ | 35⅜ | 21½ | 33 | 31⅜ | 7½ | ... | Szent Kiraly. |
| 28th " " | 6+6 | 40⅝ | 34 | 15½ | 28⅜ | 32 | 5⅜ | ... | Do. |
| 6th October 1868 | 6+7 | 40½ | 36 | 35½ | 35½ | 42½ | 6½ | 9 | Babat. |
| " " 1873 | 7+10 | 39⅝ | 35½ | 29½ | 32⅝ | 33½ | 5½ | 8½ | Szent Kiraly. |
| 7th " " | 8+6 | 39½ | 36 | 21⅜ | 27 | 35⅜ | 6½ | ... | Do. |
| " " " | 7+8 | 37¾ | 34 | 25⅝ | 31¾ | 41 | 6 | ... | Do. |

Specimens of the Mountain Form.

| | | | | | | | | | |
|-----------------------|------|------|-----|-----|-----|-----|----|-----|---------------------------|
| 8th August 1892 | 5+5 | 141⅞ | 33 | 12½ | 27⅝ | 23⅝ | 7 | 8 | Brachberg (Upper Austria) |
| 1st October 1885 | 4+4 | 41½ | 28 | 18 | 32½ | ... | 47 | ... | Graben, Styria. |
| 30th September 1885 | 5+4 | 37⅞ | 31½ | 24⅜ | 31⅞ | 28 | 6 | ... | Taschl, do. |
| 2nd October 1881 | 10+7 | 36⅝ | 30⅜ | 27½ | 31⅝ | 40½ | 7½ | ... | Mürzsteg, do. |
| 3rd " 1884 | 6+6 | 36 | 31½ | 14½ | 27 | ... | 6½ | ... | Grasleiten, do. |
| 5th " 1889 | 7+8 | 34⅝ | 33 | 14⅜ | 23⅞ | 25⅜ | 6 | ... | Graben. |

¹ This is the finest head of Alpine Red Deer known.



Antlers of German Red Deer. From a specimen in the Castle at Moritzburg.
After Dr. A. B. Meyer.

i.—Ancient Continental Specimens.

| Length (straight). | Circum- ference. | Tip to Tip. | Spread. | Points. | Locality. | Owner. |
|--------------------------------|-------------------------------|-----------------------|--------------------------------|---------|-------------|---|
| ... | ... | ... | ... | 33+29 | ? | H.M. the King of Saxony, Moritzburg. |
| 1-48 | 14 of burr | ... | 6 ft. 3 $\frac{6}{10}$ | 12+11 | ? | Do. |
| ... | ... | ... | ... | 25+12 | ? | Do. |
| ... | ... | ... | ... | 28 | ? | H.R.H. the Duke of Saxe- Coburg and Gotha. |
| -46 $\frac{1}{2}$ | 8 $\frac{3}{8}$ above trez | 5 ft. 2 $\frac{1}{4}$ | ... | 22 | ? | Count Erbach-Erbach. |
| ... | 9 $\frac{3}{8}$ | ... | ... | 28 | ? | Do. |
| ... | ... | ... | ... | 22 | Switzerland | Do. |
| (on curve) 39 $\frac{3}{4}$ | 5 $\frac{3}{4}$ | 16 | 22 $\frac{1}{2}$ inside | 9+9 | ? | Viscount Powerscourt. |
| 39 $\frac{1}{2}$ | 6 $\frac{1}{2}$ | 22 | 31 $\frac{1}{2}$ 39 outside | 6+6 | Germany | Do. |

- Owner's measurements.

¹ Weight, 41 $\frac{1}{2}$ lbs.



Head of New Zealand Red Deer. Shot by Mr. H. E. Hodgkinson.

j.—New Zealand Specimens (introduced).

| Length on out- side curve. | Circum- ference between bez and trez. | Tip to Tip. | Widest inside. | Spread. | Points. | Weight. | Locality. | Owner. |
|-------------------------------------|---|------------------|-------------------|------------------|---------|---------|-----------|-------------------|
| -46 | 5 $\frac{1}{2}$ | ... | 37 $\frac{1}{2}$ | 42 | 6+6 | ... | N. Otago | H. E. Hodgkinson. |
| -46 | 5 $\frac{1}{2}$ | ... | 31 | 38 $\frac{1}{2}$ | 6+6 | ... | Do. | Melville Gray. |
| -45 | 6 | ... | 27 $\frac{3}{4}$ | 36 | 6+6 | ... | Do. | H. E. Hodgkinson. |
| -45 | 5 $\frac{3}{4}$ | 16 $\frac{1}{2}$ | 31 | 40 $\frac{3}{4}$ | 6+7 | ... | Do. | P. F. Hadow. |
| -45 | 5 | ... | ... | 34 | 6+6 | ... | Do. | Major Cliff. |
| -45 | 5 $\frac{1}{2}$ | ... | ... | 37 $\frac{1}{2}$ | 13 | ... | Do. | J. Forbes. |
| -44 $\frac{1}{2}$ | 5 | 8 $\frac{1}{4}$ | 30 | 36 $\frac{3}{4}$ | 6+6 | ... | Do. | H. M. Cliff. |
| -44 $\frac{1}{4}$ | 5 $\frac{1}{4}$ | ... | 33 $\frac{1}{2}$ | 37 $\frac{1}{2}$ | 7+7 | ... | Do. | C. D. Hodgkinson. |
| -44 $\frac{1}{4}$ | 5 | ... | ... | 39 $\frac{3}{4}$ | 7+6 | ... | Do. | P. F. Hadow. |
| -44 | 5 $\frac{1}{2}$ | ... | ... | 40 | 15 | ... | Do. | A. Cowie. |
| -44 | 5 $\frac{1}{2}$ | ... | ... | 38 | 5+6 | ... | Do. | A. E. Leatham. |
| -43 $\frac{1}{2}$ | 5 $\frac{1}{4}$ | ... | ... | 38 $\frac{1}{2}$ | 6+6 | ... | Do. | P. F. Hadow. |
| -43 | 5 $\frac{3}{4}$ | ... | ... | 38 $\frac{1}{2}$ | 6+6 | ... | Do. | J. Horn. |
| -43 | 5 $\frac{1}{2}$ | ... | ... | 33 | 7+7 | ... | Do. | J. Grindells. |
| -42 $\frac{1}{2}$ | 5 $\frac{1}{4}$ | ... | ... | 37 $\frac{1}{2}$ | 6+6 | ... | Do. | R. E. Clouston. |

- Owner's measurements.

| Length on out- side curve. | Circum- ference between bez and trez. | Tip to Tip. | Widest inside. | Spread. | Points. | Weight. | Locality. | Owner. |
|-------------------------------------|---|------------------|-------------------|------------------|---------|---------|-----------|-------------------------|
| -42 | 4 $\frac{1}{4}$ | ... | 32 | ... | 6+6 | ... | N. Otago | D. Fraser. |
| 42 | 5 $\frac{1}{2}$ | 24 $\frac{5}{8}$ | 33 $\frac{1}{2}$ | 37 $\frac{1}{4}$ | 6+5 | ... | ? | A. D. Whatman. |
| -41 $\frac{3}{4}$ | 5 $\frac{1}{4}$ | ... | ... | 38 $\frac{3}{4}$ | 7+8 | ... | N. Otago | H. E. Hodgkinson. |
| -41 $\frac{1}{2}$ | 5 | ... | ... | 37 $\frac{1}{2}$ | 6+7 | ... | Do. | J. Forbes. |
| -41 $\frac{1}{2}$ | 5 $\frac{1}{4}$ | ... | ... | 36 $\frac{1}{2}$ | 6+6 | ... | Do. | The late B. Armytage. |
| -41 $\frac{1}{2}$ | 5 $\frac{1}{2}$ | ... | ... | 34 $\frac{3}{4}$ | 7+6 | ... | Do. | Melville Gray. |
| -41 $\frac{1}{2}$ | 5 $\frac{1}{4}$ | ... | 35 | ... | 5+4 | ... | Do. | H. F. Wallace. |
| -41 $\frac{1}{4}$ | 5 $\frac{1}{4}$ | ... | 33 $\frac{1}{2}$ | 39 $\frac{1}{2}$ | 7+7 | ... | Do. | C. D. Hodgkinson. |
| -41 | 5 | ... | ... | 39 $\frac{1}{2}$ | 6+7 | ... | Do. | R. M. Morten. |
| -41 | 6 $\frac{1}{4}$ | ... | ... | 36 $\frac{1}{2}$ | 6+5 | ... | Do. | J. S. Handyside. |
| -41 | 6 | ... | ... | 38 | 5+4 | ... | Do. | D. Bell. |
| -41 | 5 $\frac{3}{8}$ | ... | ... | 38 | 18 | ... | Do. | Baron von Kusserov. |
| -41 | 6 | ... | ... | 37 | 7+6 | ... | Do. | C. R. Westmacott. |
| -40 $\frac{1}{2}$ | 6 | ... | ... | 38 | 5+5 | ... | Do. | R. Nicholson. |
| -39 | 7 | ... | 30 $\frac{1}{2}$ | 35 $\frac{1}{2}$ | 6+6 | ... | Wairarapa | C. P. Skenett. |
| 38 $\frac{3}{4}$ | 5 $\frac{1}{4}$ | 15 | 26 | 31 $\frac{1}{2}$ | 6+6 | ... | Do. | E. N. Senior. |
| 38 $\frac{1}{2}$ | 4 $\frac{3}{4}$ | 17 $\frac{3}{4}$ | 29 $\frac{3}{4}$ | 34 | 6+6 | ... | Do. | Major C. S. Cumberland. |
| 38 $\frac{1}{2}$ | 6 $\frac{1}{4}$ | ... | ... | 33 | 6+6 | ... | Do. | A. Pilkington. |
| 38 $\frac{1}{2}$ | 6 $\frac{1}{2}$ | ... | 28 | 36 | 17 | ... | Do. | E. W. Bunny. |
| -38 | 5 | ... | ... | 33 | 6+6 | ... | Do. | E. C. Studholm. |
| -36 $\frac{1}{2}$ | 6 $\frac{3}{8}$ | ... | ... | 32 $\frac{1}{2}$ | 9+9 | ... | Do. | J. S. Handyside. |
| -35 $\frac{1}{2}$ | 9 $\frac{1}{2}$ | 27 | 23 $\frac{1}{2}$ | 27 | 11+11 | ... | Do. | N. Grace. |
| -35 $\frac{1}{4}$ | 7 $\frac{1}{2}$ | 40 $\frac{1}{2}$ | 33 | ... | 6+7 | ... | Do. | T. E. Donne. |

- Owner's measurements.

B.—CARPATHIAN RED DEER (*C. elaphus* var.).

The Carpathian red deer, as represented in the Marmaros district, appears to be to a great extent intermediate between the western and eastern races of the species, having the short face, complex antlers, and red-brown summer coat of the former, but tending to show the blackness of the under-parts characteristic of the latter. The red is perhaps less bright than in the western, and the black less abundant than in the eastern race.

A stunted form of the maral or eastern race also occurs in the Marmaros forest, where it is locally known as the Polish, or wandering, stag.

Some of the antlers catalogued under the heading of the eastern race probably belong to the present form.



Skull and Antlers of Eastern Red Deer shot in the Western Caucasus by
Mr. St. George Littledale.

C.—EASTERN RED DEER or MARAL (*C. elaphus maral*).

In this race of the red deer, which may intergrade with some of the western races by means of the Carpathian form, the height at the shoulder reaches to about $4\frac{1}{2}$ feet, and the build is stouter, the neck thicker, and the face in the hinds longer and more pointed than in the true red deer. The summer coat of immature animals is very generally marked with numerous yellowish spots, and at all ages is much less red than in the western races, being, in fact, grey in September. The colour of the winter coat is dark slaty grey on the back, with the rump-patch of a very bright yellow, and a large amount of black on the shoulders,

thighs, and under-parts ; this blackness of the under-parts also characterising the summer coat. The large and massive antlers are generally less complex than those of the western races, the number of points being seldom more than eight on a side, and frequently only six ; while the bez-tine, which may be wanting, is often shorter than the long and



Antlers of Eastern Red Deer, from the Carpathians, in the Powerscourt Collection.

upwardly curved brow-tine, and the fourth tine is generally more distinct from the crown. The average weight is given as about 560 lbs.

The typical locality of the maral is the Caspian provinces of Northern Persia, whence this or allied races extend into the Crimea, and probably Asia Minor, and so on into Transcaucasia, the Caucasus, probably Circassia, and the Galician Carpathians. In the Marmaros district of

the Hungarian Carpathians there occurs, as stated above, a stunted form of maral, known as the Polish stag, believed to be an immigrant from Galicia. In the Bukovina district of the Galician Carpathians sportsmen recognise a large grey stag in the plains (apparently the true maral) and a smaller and darker mountain race (*C. claphus montanus*). It is noteworthy that specimens from the Caucasus have shorter faces than those from Northern Persia, and thus approximate to the western types. Sportsmen call this race the Hungarian red deer, but this is scarcely legitimate, as Hungary is not the typical locality. (For other specimens see p. 16 *et seq.*) The Crimean red deer have very massive, few-tined antlers.

| Length on out- side curve. | Circum- ference. | Tip to Tip. | Widest inside. | Spread. | Points. | Locality. | Owner. |
|-------------------------------------|---------------------|-----------------|-------------------|---------|---------|---------------------|---|
| 48½ | 6 | 30 | 41½ | ... | 5+6 | Ichater Dag, Crimea | H.R.H. the Duke of Saxe-Coburg and Gotha. |
| 48½ | 7¼ | (single antler) | ... | ... | 12 | Asia Minor | British Museum (Lord A. Hay). |
| 48 | 7¼ | ... | ... | ... | ... | Caucasus | St. George Littledale. |
| 47¼ | 7¼ | 33½ | 43¼ | 54¾ | 10+9 | Do. | Do. |
| 46¾ | 5¾ | 18 | 33 | ... | 8+8 | Do. | British Museum. |
| 46¾ | 6½ | ... | 39 | ... | 8+6 | Asia Minor | F. E. Whittall. |
| 45½ | 5¾ | 42¾ | 49 | 52 | 6+6 | Caucasus | S. H. Whitbread. |
| 45½ | 8½ | 65¼ | ... | ... | 14 | Do. | Grand Duke Mikhael. |
| 45½ | 7¼ | 32¾ | 40½ | 46 | 8+8 | Do. | Prince E. Demidoff. |
| ¹ 45½ | 7¾ | ... | ... | ... | 9+6 | Asia Minor | Sir Edmund G. Loder, Bart. |
| ² 45 | 8 | 36 | 42 | ... | 11+10 | Caucasus | Prince E. Demidoff. |
| 45 | 6¼ | 30½ | 38½ | 44½ | 7+6 | Asia Minor | H. O. Whittall. |
| 44½ | 6¾ | 31 | 39½ | 47½ | 8+7 | ? | Duke of Bedford. |
| 44½ | 7½ | 19¼ | 26 | 36¼ | 7+6 | Asia Minor | F. W. Baker. |
| 44¼ | 6¾ | (single antler) | ... | ... | 9 | Do. | British Museum (C. G. Danford). |
| 44 | 5¾ | 28¾ | 36 | 40½ | 8+7 | Ak Dag | J. L. Rees. |
| 43½ | 6½ | 26¾ | 35¾ | 46½ | 10+8 | Do. | D. Forbes. |
| 43½ | 6 | ... | 40 | ... | 8+6 | Asia Minor | M. Le C. Findlay. |
| 43½ | 5¾ | 16 | 28 | ... | 6+6 | Crimea | Earl of Dunmore. |
| 43 | 5¾ | 38 | 39¾ | 49 | 7+7 | Ak Dag | J. W. Williamson. |
| 43 | 5¼ | 22¾ | 32¾ | 37½ | 7+6 | Do. | H. Williamson. |

- Owner's measurements.

¹ Weight, 20½ lbs.

² Estimated weight, 746 lbs.

| Length on out- side curve. | Circum- ference. | Tip to Tip. | Widest inside. | Spread. | Points. | Locality. | Owner. |
|-------------------------------------|---------------------|------------------|-------------------|------------------|---------|----------------|---------------------|
| 42 $\frac{1}{4}$ | 6 | 22 $\frac{3}{4}$ | 31 | 36 $\frac{3}{4}$ | 6+6 | Ak Dagħ . . | H. O. Whittall. |
| 42 | 6 $\frac{1}{4}$ | 28 | 33 $\frac{1}{2}$ | 44 $\frac{1}{2}$ | 9+8 | ? | R. A. Cooper. |
| 42 | 6 | 26 $\frac{1}{4}$ | 34 $\frac{1}{2}$ | 42 | 7+6 | Ak Dagħ . . | T. Bowen Rees. |
| 42 | 6 $\frac{1}{4}$ | 24 | 30 | 35 | 7+7 | Asia Minor . . | J. B. Jenkinson. |
| 41 $\frac{1}{2}$ | 6 | 29 $\frac{1}{2}$ | 37 | 47 | 6+6 | Ak Dagħ . . | B. Hodder. |
| 40 | 5 $\frac{3}{4}$ | 24 $\frac{3}{4}$ | 34 $\frac{1}{2}$ | 39 | 8+6 | Caucasus . . | P. B. Vander Byl. |
| 39 $\frac{1}{2}$ | 5 $\frac{3}{4}$ | 26 | 32 | 38 | 7+6 | Asia Minor . . | Capt. Pitt Taylor. |
| 37 | 5 $\frac{3}{4}$ | 31 $\frac{1}{2}$ | 34 $\frac{3}{4}$ | 40 $\frac{1}{2}$ | 7+6 | N. Persia . . | Capt. C. T. Daukes. |
| 36 | 5 $\frac{3}{4}$ | 15 | 25 | 37 $\frac{1}{2}$ | 7+7 | Persia . . | Major P. M. Sykes. |

D.—N. AFRICAN RED DEER (C. elaphus barbarus).

For characters, see page 2.

| Length on out- side curve. | Circum- ference between bez and trez. | Tip to Tip. | Widest inside. | Spread. | Points. | Locality. | Owner. |
|-------------------------------------|---|------------------|-------------------|---------|---------|------------------|----------------------------|
| 38 $\frac{7}{8}$ | 5 $\frac{3}{8}$ | ... | ... | ... | 6+5 | North Africa . . | Sir Edmund G. Loder, Bart. |
| 36 $\frac{1}{2}$ | 4 $\frac{3}{4}$ | 22 $\frac{7}{8}$ | 28 $\frac{3}{4}$ | ... | 4+4 | Do. . . | British Museum. |
| 30 $\frac{1}{2}$ | 3 $\frac{3}{4}$ | ... | ... | ... | 4+3 | ? | Duke of Bedford. |
| 24 $\frac{1}{4}$ | 3 $\frac{3}{4}$ | 20 $\frac{3}{4}$ | 21 $\frac{1}{2}$ | ... | 4+4 | Tunis . . | Major R. Rankin. |

- Owner's measurements.



Skull and Antlers of Hangul or Kashmir Barasingha.
Shot by Mr. P. B. Vander Byl.

The HANGUL or KASHMIR BARASINGHA (*Cervus cashmirianus*).

In this very distinct species the first, or brow, tine arises at a considerable distance above the burr, or coronet, of the antlers, instead of close to it, as in the red deer; the bez-tine is usually longer than the brow; the total number of points is generally only five aside, although a third tine may occasionally be added to the normal terminal pair, thus forming an imperfect cup; and the beam of each antler is much curved in towards the middle line of the head. The terminal fork is placed obliquely. The tail is short, and not included in the light patch on the buttocks, which is very small; and the tuft on the hind cannon-bone is situated lower down than in the red deer. In winter the general colour of the coat is brown, brownish ash, or liver-colour, with the hairs speckled; the light area on the inner side of the buttocks being dirty white, with a blackish line on the inner sides of the thighs, the upper side of the tail black, and the lips, chin, and inner surface of the ears white or whitish. In the fawns the spotting is stated to remain much longer than in the red deer. In the pairing season the old stags squeal like wapiti, instead of roaring in red-deer fashion.

The hangul inhabits the forest-districts of the north side of the vale of Kashmir and some of the neighbouring valleys, at elevations ranging from 9000 to 12,000 feet in summer, but descending to about 5000 feet in winter. The height at the shoulder varies from about 4 feet to 4 feet 4 inches; the average weight being about 450 lbs.

A pale-coloured race, *C. cashmirianus macneilli*, inhabits Tibet and Sze-chuen.

The finest pair of antlers appears to be one given by Raja Gulab Singh many years ago to Colonel King, then commanding the 14th Hussars, at whose death they passed to Captain Prettyjohn of the same regiment. What became of these antlers Mr. A. O. Hume, who measured them at Meerut in 1852 or 1853, could not ascertain. The record stands, R. 52, L. $53\frac{1}{2}$, measured along the curve inside. Girth 10 inches at burr, and 7 half-way between bez and trez tines. They were a wide-branching, symmetrical pair.

| Length on outside curve. | Circumference between bez and trez. | Tip to Tip. | Widest inside. | Points. | Locality. | Owner. |
|--------------------------|-------------------------------------|------------------|------------------|---------|--------------------------|-----------------------------------|
| -48 $\frac{1}{8}$ | 7 $\frac{1}{2}$ | 14 | 33 | 7+5 | Lidar Valley, Kashmir | K. S. Laurie. |
| 47 $\frac{1}{2}$ | 6 | 22 | 39 | 6+6 | Kashmir . . . | P. B. Vander Byl. |
| -47 | 7 $\frac{5}{8}$ | 21 | 36 | 7+5 | Do. . . . | Bombay Natural History Society. |
| 47 | 6 $\frac{3}{4}$ | 21 $\frac{1}{4}$ | 36 $\frac{3}{4}$ | 5+5 | Do. . . . | Sir Edmund G. Loder, Bart. |
| 47 | 6 $\frac{1}{4}$ | 30 | 35 $\frac{1}{2}$ | 8+8 | Do. . . . | Duke of Wellington. |
| 47 | 6 | 20 | 34 $\frac{3}{4}$ | 6+5 | Do. . . . | Major H. R. Cook. |
| 46 | 5 $\frac{3}{8}$ | 13 | 34 $\frac{3}{4}$ | 5+5 | Do. . . . | Capt. W. F. Brayne. |
| 45 $\frac{7}{8}$ | 8 | 35 | 41 | 6+6 | Do. . . . | British Museum (Hume Collection). |
| 45 $\frac{5}{8}$ | 6 | 25 $\frac{3}{4}$ | 36 | 8+8 | Do. . . . | Sir Victor Brooke's Collection. |
| 45 $\frac{1}{2}$ | 6 $\frac{1}{4}$ | 16 $\frac{1}{2}$ | 34 | 6+5 | Do. . . . | Brig.-Gen. E. H. Molesworth. |
| 45 | 6 $\frac{3}{4}$ | 19 | 34 | 6+6 | Do. . . . | Lieut. - Gen. Sir R. Pole-Carew. |
| -44 $\frac{3}{4}$ | 6 | 20 | 43 | 5+5 | Lidar Valley . . . | Queen's Own Corps of Guides. |
| -44 $\frac{5}{8}$ | 6 $\frac{1}{2}$ | 31 $\frac{1}{2}$ | 44 $\frac{3}{4}$ | 5+5 | Kishenganga Valley . . . | Do. |
| 44 $\frac{1}{2}$ | 6 | 27 $\frac{3}{4}$ | 38 $\frac{3}{4}$ | 4+4 | Sind Valley . . . | J. V. Phelps. |
| 44 | 7 $\frac{1}{4}$ | 30 $\frac{3}{4}$ | 40 $\frac{7}{8}$ | 5+5 | Do. . . . | Major P. H. G. Powell-Cotton. |
| 44 | 6 $\frac{3}{4}$ | 23 $\frac{1}{4}$ | 36 $\frac{1}{2}$ | 5+5 | Do. . . . | Naval and Military Club. |
| 44 | 6 | 27 | 36 | 5+5 | Kashmir . . . | Hon. Walter Rothschild. |
| 44 | 6 $\frac{3}{4}$ | 34 $\frac{1}{2}$ | 47 $\frac{1}{2}$ | 5+5 | Do. . . . | Major V. Rickard. |

- Owner's measurements.

| Length on out- side curve. | Circum- ference between bez and trez. | Tip to Tip. | Widest inside. | Points. | Locality. | Owner. |
|-------------------------------------|---|------------------|-------------------|---------|-----------------|-------------------------------|
| 44 | 5 $\frac{3}{4}$ | 18 | 31 | 5+5 | Kashmir . . . | C. E. Bryant. |
| 43 $\frac{3}{4}$ | 5 $\frac{7}{8}$ | 18 $\frac{1}{2}$ | 29 | 5+5 | Do. . . . | C. H. Smith. |
| 43 $\frac{1}{2}$ | 6 | 10 $\frac{3}{4}$ | 32 $\frac{1}{2}$ | 7+6 | Do. . . . | A. Williams. |
| 43 $\frac{1}{2}$ | 6 | 15 $\frac{1}{2}$ | 29 $\frac{1}{4}$ | 7+7 | Do. . . . | C. M. Truman. |
| 43 | 5 $\frac{1}{2}$ | 34 | 41 $\frac{1}{2}$ | 5+4 | Do. . . . | His Majesty the King. |
| 43 | 6 | 20 | 35 | 6+5 | Sind Valley . . | A. O. Hume. |
| 43 | 5 $\frac{7}{8}$ | 26 $\frac{1}{8}$ | 37 $\frac{7}{8}$ | 6+5 | Kashmir . . . | Martyn Kennard. |
| 43 | 5 $\frac{1}{4}$ | 19 $\frac{3}{4}$ | 34 $\frac{1}{2}$ | 6+6 | Do. . . . | Major F. W. H. Walshe. |
| 42 $\frac{3}{4}$ | 5 $\frac{1}{2}$ | 18 | 33 $\frac{3}{4}$ | 6+5 | Do. . . . | Major R. Baker Carr. |
| 42 $\frac{3}{4}$ | 5 $\frac{1}{2}$ | 17 $\frac{1}{4}$ | 33 $\frac{3}{4}$ | 5+6 | Do. . . . | Col. H. D'U. Keary. |
| 42 $\frac{1}{2}$ | 6 $\frac{1}{4}$ | 11 $\frac{1}{2}$ | 26 $\frac{3}{4}$ | 5+5 | ? | Capt. A. H. Wilson. |
| 42 | 5 $\frac{3}{4}$ | 13 $\frac{1}{2}$ | 26 $\frac{1}{2}$ | 5+5 | Kashmir . . . | E. L. Phelps. |
| 42 | 5 $\frac{1}{2}$ | 20 | 35 $\frac{1}{2}$ | 6+5 | Do. . . . | W. A. Conduitt. |
| 42 | 6 | 22 | 34 | 5+5 | Do. . . . | Capt. W. Furnivall. |
| 41 $\frac{3}{4}$ | 5 $\frac{3}{4}$ | 23 $\frac{1}{2}$ | 35 | 5+5 | Do. . . . | Major Kingsley Foster. |
| 41 $\frac{3}{4}$ | 6 | 18 $\frac{1}{2}$ | 31 $\frac{1}{2}$ | 6+5 | Do. . . . | H. A. Attenborough. |
| 41 $\frac{1}{2}$ | 8 | 23 $\frac{1}{4}$ | 34 $\frac{1}{4}$ | 5+6 | Do. . . . | Major P. H. G. Powell-Cotton. |
| 41 $\frac{1}{2}$ | 6 | 25 $\frac{1}{4}$ | 36 $\frac{1}{2}$ | 5+5 | Do. . . . | Col. F. H. Hancock. |
| 41 $\frac{3}{8}$ | 5 $\frac{3}{4}$ | 23 | 33 $\frac{1}{2}$ | 6+5 | Do. . . . | Capt. H. C. H. O'Brien. |
| 41 $\frac{1}{4}$ | 6 | 15 $\frac{5}{8}$ | 29 | 7+6 | Do. . . . | P. W. Cobbold. |
| 41 $\frac{1}{4}$ | 5 $\frac{1}{2}$ | ... | ... | 6+3 | Do. . . . | Lady Jenkins. |
| 40 $\frac{1}{2}$ | 6 $\frac{1}{2}$ | 15 $\frac{1}{2}$ | 28 | 5+5 | Do. . . . | Sir Robert Harvey, Bart. |
| 40 $\frac{1}{2}$ | 6 | 27 $\frac{3}{4}$ | 36 | 5+5 | Do. . . . | Col. G. D. F. Sullivan. |
| 40 $\frac{1}{2}$ | 5 | 8 $\frac{1}{2}$ | 27 | 5+5 | Do. . . . | Major G. F. Mockler. |
| 40 $\frac{1}{4}$ | 5 $\frac{3}{4}$ | 23 | 37 $\frac{1}{2}$ | 6+6 | Do. . . . | C. P. Radclyffe. |
| 40 $\frac{1}{4}$ | 7 $\frac{3}{8}$ | 24 $\frac{1}{2}$ | ... | 5+5 | Do. . . . | Major H. W. Codrington. |
| 40 | 5 $\frac{3}{4}$ | 18 | 30 $\frac{1}{4}$ | 6+6 | Do. . . . | A. Alexander. |
| 39 $\frac{1}{2}$ | 6 | 18 | 30 $\frac{3}{4}$ | 5+5 | Do. . . . | S. F. A. Hurt. |
| 39 $\frac{1}{4}$ | 5 | 14 $\frac{3}{4}$ | 27 $\frac{3}{4}$ | 5+5 | Do. . . . | T. W. Cuffe. |
| 39 | 5 $\frac{1}{2}$ | 27 $\frac{3}{4}$ | 32 | 7+7 | Do. . . . | Capt. W. F. Brayne. |
| 39 | 5 $\frac{1}{2}$ | 19 $\frac{1}{2}$ | 30 $\frac{3}{4}$ | 5+4 | Do. . . . | E. A. Fielden. |



Skull and Antlers of Yarkand Stag. From Mr. A. O. Hume's specimen.

The YARKAND STAG (*Cervus yarcandensis*).

This stag, which inhabits the Tarim Valley and Maralbashi in Eastern Turkestan, differs markedly from the hangul by the large and well-defined light rump-patch, which includes the tail ; and by the general colour being light rufous fawn. The antlers are usually 5-tined, but by the development of a third snag to the crown may become (as in the figure) 6-tined. They differ from those of the hangul in that the terminal fork is placed at right angles to the middle line of the head so as to look directly forwards. The fifth

tine, which is generally inclined inwards, is larger than the fourth, and the whole upper part of the antlers is often bent forwards in the manner of those of the shou.

| Length on outside curve. | Circum- ference. | Tip to Tip. | Widest inside. | Spread. | Points. | Locality. | Owner. |
|-----------------------------------|---------------------|----------------|-------------------|---------|---------|----------------|--------------------------------------|
| 41½ | 6 | 31¼ | 31¼ | 44 | 6+6 | Maralbashi . . | British Museum. |
| 40¼ | 5½ | 23¾ | 31¾ | ... | 5+5 | Do. . . | A. O. Hume. |
| 40 | 5½ | 25 | 31 | ... | 6+5 | Do. . . | E. L. Phelps. |
| 39½ | 6 | 24½ | 25 | ... | 7+6 | Do. . . | A. O. Hume. (See illus- tration.) |
| 39¼ | 5¾ | 16½ | 28¾ | ... | 6+6 | Do. . . | David T. Hanbury. |



Kashmir Barasingha Head.



Skull and Antlers of Shou. From Mr. A. O. Hume's specimen.

The SHOU or SIKHIM STAG (*Cervus affinis*).

A very large stag with antlers of the general type of those of the hangul, but larger, and with the beam bent suddenly forwards at the trez-tine, so that the upper half overhangs the face, the number of points being usually five. The brow-tine is less constantly longer than the bez, the fifth tine is large and inclined inwards, and the terminal fork looks almost directly forwards. In a young stag from Sikhim, referred to this species, the colour of the thick winter-coat was very like that of the hangul, with a large white rump-patch; the ears were large and bushy, the tail relatively short, and the general appearance wapiti-like (see *P.Z.S.*, 1909, p. 599). This fine stag

inhabits the upper part of the Chumbi valley and some of the neighbouring valleys in Bhutan. An identical or nearly allied deer is also found in the Tsan-po basin, near Lhasa (see the *Field*, October 27, 1906).

| Length on outside curve. | Circumference. | Tip to Tip. | Widest inside. | Points. | Locality. | Owner. |
|--------------------------|-----------------|------------------|------------------|---------|------------------|-----------------------------------|
| 55 $\frac{3}{4}$ | 6 $\frac{1}{2}$ | 17 $\frac{1}{4}$ | 40 $\frac{3}{8}$ | 7+6 | Tibetan Frontier | A. O. Hume. (See illustration.) |
| 55 $\frac{3}{4}$ | 6 $\frac{7}{8}$ | 26 $\frac{1}{8}$ | 44 | 5+5 | Do. | British Museum (B. H. Hodgson). |
| 54 $\frac{3}{8}$ | 6 $\frac{5}{8}$ | 21 $\frac{5}{8}$ | 37 $\frac{1}{4}$ | 5+5 | Do. | British Museum (Dr. Campbell). |
| 53 $\frac{1}{4}$ | 6 $\frac{7}{8}$ | 30 | 45 $\frac{3}{4}$ | 4+5 | Do. | British Museum (Hume Collection). |
| -52 $\frac{1}{2}$ | 7 | 18 $\frac{1}{2}$ | 38 | 5+5 | Do. | Sir Edmund G. Loder, Bart. |
| 52 | 8 | ... | ... | ... | Do. | Hon. Walter Rothschild. |
| 50 | 6 $\frac{1}{4}$ | 21 $\frac{3}{4}$ | 35 $\frac{1}{4}$ | 8+6 | Do. | H. J. Elwes. |
| 49 $\frac{1}{2}$ | 7 $\frac{1}{2}$ | 38 | 45 $\frac{1}{2}$ | 5+5 | Do. | Col. J. Biddulph. |
| -48 | 6 | 30 | 42 $\frac{1}{4}$ | 5+5 | Chumbi Valley. | Lord Curzon. |
| -48 | 6 $\frac{3}{4}$ | 30 $\frac{3}{4}$ | ¹ 39 | 5+5 | Tibetan Frontier | H. J. Elwes. |
| 48 | 6 $\frac{3}{8}$ | 17 | 34 $\frac{1}{2}$ | 6+5 | Do. | H. R. H. the Duc d'Orléans. |
| 47 $\frac{7}{8}$ | 5 $\frac{5}{8}$ | 30 $\frac{3}{8}$ | 40 $\frac{1}{2}$ | 5+5 | Do. | British Museum. |
| -43 | ... | ... | ... | ... | Chumbi Valley. | Indian Museum. |
| 41 | 6 $\frac{1}{4}$ | ... | ... | 6+4 | ? | Duke of Bedford. |
| 39 $\frac{3}{4}$ | 5 $\frac{3}{4}$ | 20 | 31 $\frac{1}{4}$ | 5+5 | ? | E. P. Tennant. |

- Owner's measurements.

¹ Spread.

THOROLD'S DEER (*Cervus albirostris*).

Thorold's deer is of the same approximate dimensions as the hangul, from which it is readily distinguished by the more flattened antlers, which have no bez-tine, and do not curve inwards, but are suddenly bent backwards at the point of origin of the trez; the total number of points being either five or four. Equally distinctive are the pure white muzzle and chin, the white inner surface of the ears; the reversal of the hair on the middle of the back, so as to form a kind of hump on the withers with the points of the hairs directed towards the neck; the low position and large size of the gland-tuft on the hind cannon-bone; and the shortness of the tail, which is included in the very large straw-coloured area of the buttocks. The general colour of

the coat is uniformly dark brown, with the hairs, which are remarkable for their coarse and brittle nature, minutely speckled. The antlers are smooth and white nearly throughout.

The Tibetan plateau, north of Lhasa, is the home of this fine species of deer, which was originally described by the late Colonel Przewalski under the scientific name given above. Subsequently two examples were obtained by Dr. W. G. Thorold, to the north-east of Lhasa, at an elevation of between 13,000 and 14,000 feet, which, under the impression that they indicated a new species, were named *C. thoroldi* by Dr. W. T. Blanford.

| Length on out- side curve. | Circum- ference. | Tip to Tip. | Widest inside. | Points. | Locality. | Owner. |
|-------------------------------------|---------------------|----------------|-------------------|---------|-------------------|-------------------------|
| 47 | ... | ... | ... | ... | N. of Lhasa . . | British Museum. |
| 38½ | 4½ | 37 | 27 | 5+4 | Central Tibet . . | Hon. Walter Rothschild. |
| 38 | 5¼ | 28 | 31 | 5+5 | Do. . . | British Museum. |
| -36 | 4½ | 32 | 32 | 5+5 | ? ¹ | Indian Museum. |

- Owner's measurements.

¹ Bought at Darjiling, thither brought by Tibetans.

The WAPITI DEER (*Cervus canadensis*).

Wapiti are large deer of the red deer group, easy of recognition by the form of their antlers, which are of great size, carrying, when fully developed, more than five tines, curving backwards, and being much flattened in the upper half. They always have the bez-tine developed, but their most characteristic feature is the great size of the fourth tine, which is larger than either of the others, and, with the fifth, which is also long, forms a nearly regular fork; the fourth, fifth, and sixth tines being situated almost in the plane of the portion of the beam immediately below them, so that they more or less completely hide one another when viewed from the front aspect. The brow-tine rises close to the burr, and is nearly as long as the bez. The tail is extremely short; the light rump-patch is very large and includes the tail; the neck and under-parts are blackish; and the general colour of the summer coat is yellowish brown on the upper-parts.

Wapiti (known in America as elk) range from North America to North-Eastern and Central Asia; the typical form being the Rocky Mountain wapiti. The height at the shoulder is about 5 feet 4 inches, and the weight from 700 to 1000 lbs.

A.—ROCKY MOUNTAIN WAPITI (*C. canadensis typicus*).

Distribution.—N. America, east of the Rockies, inclusive of that range.

| Length on outside curve. | Circumference between bez and trez. | Circumference of burr. | Tip to Tip. | Widest inside beam of horn. | Widest outside. | Points. | Locality. | Owner. |
|--------------------------|-------------------------------------|-------------------------|------------------|-----------------------------|------------------|---------|-------------------------|---|
| -66 | ... | ... | ... | ... | 60 | 6+6 | Wyoming | J. Darley. |
| -65 | 7 $\frac{5}{8}$ | ... | ... | ... | 40 | 7+7 | Laramie Plains, Wyoming | Schoverling, Daly, and Gales. |
| -64 $\frac{3}{4}$ | ... | 9 $\frac{3}{4}$ | 41 $\frac{1}{2}$ | 49 | ... | 6+7 | Wyoming | James J. Harrison. |
| 64 $\frac{1}{2}$ | 8 | ... | 31 $\frac{1}{2}$ | 45 | 52 | 7+6 | ? | Viscount Powers-court. |
| -64 $\frac{1}{4}$ | 8 | ... | ... | 48 | ... | 7+7 | N.W. Wyoming | A. Rogers. |
| -63 $\frac{3}{4}$ | 8 $\frac{1}{4}$ | ... | 49 $\frac{1}{4}$ | 48 $\frac{1}{2}$ | ... | 7+9 | North Prong | Frank Cooper. |
| 63 $\frac{1}{2}$ | 8 | ... | 39 | 45 $\frac{1}{2}$ | 52 | 7+7 | Wyoming | H. A. C. Darley. |
| 62 | 7 $\frac{3}{8}$ | ... | 33 $\frac{1}{4}$ | 50 $\frac{5}{8}$ | ... | 7+7 | Snake River, Colorado | Ernest Farquhar. |
| 61 | 8 | ... | 35 $\frac{1}{4}$ | 45 $\frac{1}{2}$ | 53 $\frac{7}{8}$ | 6+6 | Bighorn Mts., Wyoming | Sir H. Seton-Karr. |
| 61 | 8 | ... | 36 $\frac{1}{2}$ | 46 $\frac{1}{2}$ | 55 | 8+8 | ? | Viscount Powers-court. |
| 60 $\frac{1}{2}$ | 8 $\frac{1}{4}$ | ... | ... | 55 | ... | 7+6 | Wyoming | E. Grant. |
| -60 $\frac{1}{2}$ | 8 $\frac{1}{2}$ | 14 | ... | ... | 52 | 9+8 | White River | Dall de Weese. |
| 60 $\frac{3}{4}$ | 7 $\frac{1}{4}$ | ... | 43 | 46 $\frac{1}{4}$ | ... | 6+6 | Wyoming | Major C. C. Ellis. |
| 60 | 8 $\frac{1}{4}$ | ... | 36 | 37 $\frac{1}{2}$ | 45 | 6+6 | Do. | W. Winans. |
| 59 $\frac{1}{2}$ | 7 | ... | 38 | 48 $\frac{1}{2}$ | 52 | 8+7 | Do. | L. E. Sackville West. |
| 59 $\frac{1}{2}$ | 8 $\frac{1}{2}$ | 13 | 37 $\frac{1}{4}$ | 47 | ... | 8+8 | S.E. Wyoming | His Majesty the King. |
| -59 $\frac{1}{2}$ | ... | 10 $\frac{1}{2}$ | ... | 37 $\frac{1}{2}$ | 59 | ... | Bighorn Mts. | Sir Savile Crossley, Bart. |
| 59 | 6 $\frac{1}{2}$ | ... | 30 $\frac{1}{2}$ | 45 $\frac{1}{2}$ | 51 $\frac{1}{4}$ | 6+6 | Rocky Mts. | T. J. Burrough. |
| 59 | 7 $\frac{3}{4}$ | ... | 39 | 46 | 53 | 9+7 | Wyoming | Sutton Timmis. |
| 58 $\frac{1}{2}$ | ... | 9 between brow and bez. | ... | 46 $\frac{1}{2}$ | 50 $\frac{1}{2}$ | 10+7 | Do. | Hon. T. A. Brassey. |
| -58 $\frac{1}{2}$ | 8 $\frac{1}{2}$ | ... | ... | 44 $\frac{1}{2}$ | ... | 6+6 | Do. | J. D. Cobbold. |
| -58 $\frac{1}{2}$ | 8 $\frac{1}{4}$ | ... | 48 | ... | 50 | 6+6 | ? | F. B. Tolhurst. |
| 58 | 10 $\frac{1}{2}$ | 12 | ... | ... | ... | 7+8 | ? | P. F. Collier. |
| 58 | ... | 9 $\frac{1}{16}$ | 42 | 47 $\frac{1}{4}$ | ... | 7+6 | Wyoming | A. H. Straker. |
| 58 | 7 $\frac{3}{8}$ | ... | 43 $\frac{1}{2}$ | 49 | ... | 9+8 | Do. | W. Moncreiffe. |
| -58 | ... | 10 | 41 | ... | 49 $\frac{1}{2}$ | 7+7 | Do. | (See illustration.) American National Collection. |

- Owner's measurements.



Head of Rocky Mountain Wapiti, shot by Mr. W. Moncreiffe.
For measurements see previous page.

RECORDS OF BIG GAME

| Length on outside curve. | Circum- ference between bez and trez. | Circum- ference of burr. | Tip to Tip. | Widest inside. | Widest outside. | Points. | Locality. | Owner. |
|-----------------------------------|---|--------------------------------|------------------|-------------------|--------------------|---------|------------------|------------------------------------|
| 57 $\frac{3}{4}$ | 7 | ... | 36 | 43 $\frac{1}{2}$ | 47 | 6+6 | ? | R. Fleming Crooks. |
| 57 $\frac{1}{2}$ | 6 $\frac{7}{8}$ | ... | 24 $\frac{1}{4}$ | 35 $\frac{5}{8}$ | ... | 6+6 | Montana . . | Capt. Abdy. |
| 57 $\frac{1}{4}$ | ... | 9 $\frac{5}{8}$ | 32 | 42 $\frac{1}{4}$ | ... | 7+7 | Do. . . | Sir Humphrey de Trafford, Bart. |
| 57 | 6 $\frac{3}{4}$ | 10 | 52 $\frac{1}{2}$ | 55 | 57 $\frac{1}{2}$ | 6+6 | Do. . . | T. D. M. Cardeza. |
| 57 | 7 $\frac{1}{4}$ | ... | ... | ... | ... | 7+7 | Do. . . | Count F. Trautt- mansdorff. |
| 57 | 7 $\frac{1}{8}$ | ... | 53 | 49 $\frac{1}{2}$ | 61 | 8+9 | Colorado . . | Sir Edmund G. Loder, Bart. |
| 57 | 7 $\frac{1}{8}$ | ... | 35 $\frac{1}{8}$ | 41 $\frac{1}{8}$ | ... | 6+6 | Yellowstone Park | British Museum. |
| -56 $\frac{1}{2}$ | 6 $\frac{7}{8}$ | ... | ... | ... | 46 $\frac{3}{8}$ | 6+6 | Two Ocean Pass | Theodore Roose- velt. |
| 56 $\frac{1}{2}$ | 7 $\frac{1}{4}$ | ... | 37 | 39 $\frac{1}{2}$ | 43 $\frac{1}{2}$ | 7+6 | ? | Duke of Bedford. |
| 56 $\frac{1}{2}$ | 6 $\frac{3}{4}$ | ... | 34 | 49 | ... | 6+6 | Montana . . | Andrew Jameson. |
| -56 $\frac{1}{2}$ | 7 $\frac{5}{8}$ | ... | 29 $\frac{1}{4}$ | 41 | 44 $\frac{1}{2}$ | 7+6 | Rockies . . | N. J. Dinnen. |
| 56 | 7 | ... | 31 | 39 | 42 $\frac{1}{2}$ | 6+7 | Wyoming . . | J. V. Colby. |
| 56 | 7 | ... | ... | 50 $\frac{1}{2}$ | 51 $\frac{1}{2}$ | 7+6 | Do. . . | Royal Automobile Club. |
| 55 $\frac{5}{8}$ | 7 | ... | 43 $\frac{1}{2}$ | 47 $\frac{5}{8}$ | ... | 6+5 | Do. . . | Major G. Dalrymple White. |
| 55 $\frac{1}{2}$ | 7 $\frac{1}{4}$ | ... | 40 | 46 $\frac{1}{4}$ | 50 | 6+6 | Do. . . | P. B. Vander Byl. |
| 55 $\frac{1}{2}$ | 7 | ... | 29 $\frac{1}{2}$ | 40 $\frac{1}{2}$ | 45 $\frac{1}{2}$ | 6+6 | Do. . . | T. P. Kempson. |
| 55 $\frac{1}{2}$ | 6 $\frac{1}{2}$ | ... | 44 | 45 $\frac{1}{2}$ | ... | 6+6 | ? | A. H. Pollen. |
| 55 $\frac{3}{8}$ | 7 $\frac{1}{8}$ | ... | 46 $\frac{1}{4}$ | ... | ... | 7+6 | ? | St. George Little- dale. |
| 55 | 8 | ... | ... | 45 $\frac{1}{2}$ | ... | 7+6 | Wyoming . . | Major Maitland Kirwan. |
| 55 | 7 $\frac{1}{8}$ | ... | ... | 47 $\frac{1}{2}$ | ... | 6+5 | Do. . . | E. N. Buxton. |
| -55 | 8 $\frac{1}{8}$ | ... | ... | 41 $\frac{1}{4}$ | ... | 6+6 | ? | A. Pendarves Vivian. |
| 55 | 7 $\frac{1}{2}$ | ... | 38 | 47 | 52 $\frac{1}{2}$ | 7+7 | Wyoming . . | Viscount Powers- court. |
| ¹ 55 | 6 $\frac{5}{8}$ | ... | ... | ... | ... | 14 | ? | Duke of Bedford. |
| 54 $\frac{3}{4}$ | 6 $\frac{1}{2}$ | ... | 50 $\frac{1}{2}$ | 51 | 60 | 6+6 | ? | E. S. Crasten. |
| -54 $\frac{3}{4}$ | 6 $\frac{3}{4}$ | ... | 39 $\frac{3}{8}$ | 43 $\frac{1}{2}$ | ... | 6+6 | Montana . . | Count Scheibler. |
| 54 $\frac{1}{2}$ | 7 $\frac{3}{8}$ | ... | 37 | 43 $\frac{1}{4}$ | 48 | 7+6 | Do. . . | E. L. P. Burke. |
| 54 $\frac{1}{2}$ | ... | ... | ... | ... | ... | 14 | Colorado . . | Sir Peter Walker, Bart. |
| 54 $\frac{1}{2}$ | 9 | ... | ... | palmated | ... | 11+7 | Montana (?) . | G. Wrey. |
| 54 $\frac{1}{2}$ | 6 $\frac{3}{4}$ | ... | 28 | 37 | 46 | 6+6 | ? | F. I. Mitchell. |
| 54 $\frac{1}{2}$ | 6 $\frac{3}{4}$ | ... | 43 | 43 $\frac{1}{2}$ | 47 | 7+7 | Wyoming . . | Duke of Roxburghe. |

- Owner's measurements.

¹ Shed antlers weighed 20 lbs.

| Length on outside curve. | Circum- ference between bez and trez. | Circum- ference of burr. | Tip to Tip. | Widest inside. | Widest outside. | Points. | Locality. | Owner. |
|-----------------------------------|---|--------------------------------|------------------|-------------------|--------------------|-----------------|-----------------|------------------------------|
| 54 $\frac{3}{4}$ | 6 $\frac{1}{2}$ | ... | 38 $\frac{3}{4}$ | 44 $\frac{1}{2}$ | ... | 7+6 | Wyoming . | E. N. Buxton. |
| -54 $\frac{1}{4}$ | 8 | ... | ... | 43 $\frac{1}{2}$ | ... | 10+10 | Montana . | W. A. Tulloch. |
| 54 $\frac{1}{4}$ | 7 $\frac{5}{8}$ | ... | 49 $\frac{7}{8}$ | ... | ... | 9+7 | Wyoming . | Hon. Walter Roths- child. |
| -54 | 7 $\frac{1}{2}$ | ... | 37 | 43 | 46 $\frac{1}{2}$ | 6+6 | Do. . | J. B. Houston. |
| ¹ 54 | 7 $\frac{1}{4}$ | ... | ... | 48 | ... | 8+7 | Do. . | Earl of Lonsdale. |
| 54 | 6 $\frac{1}{2}$ | ... | 43 $\frac{1}{2}$ | 44 $\frac{1}{4}$ | 47 $\frac{1}{2}$ | 7+7 | Do. . | H. H. Dutton. |
| 54 | 7 $\frac{5}{8}$ | ... | 43 | 42 | 45 | 8+7 | Do. . | P. Niedieck. |
| 54 | 7 $\frac{1}{4}$ | ... | ... | 48 | ... | 7+8 | Do. . | Earl of Lonsdale. |
| 54 | 6 $\frac{1}{2}$ | ... | 25 | 36 $\frac{3}{4}$ | 42 $\frac{3}{4}$ | 6+6 | Sierra Nevada . | P. Grace. |
| 54 | 7 $\frac{3}{4}$ | ... | 48 | 44 | ... | 12 | ? | M. P. Grace. |
| 53 $\frac{1}{2}$ | 7 $\frac{1}{4}$ | ... | 27 $\frac{1}{2}$ | 35 $\frac{1}{2}$ | 42 $\frac{1}{2}$ | 7+6 | Wyoming . | C. P. Radclyffe. |
| -53 $\frac{1}{2}$ | 8 | ... | 43 | 44 $\frac{1}{2}$ | ... | 8+7 | Do. . | Count E. Hoyos. |
| -53 $\frac{1}{2}$ | 6 $\frac{1}{2}$ | ... | 39 | 42 | ... | 6+6 | Do. . | Major G. Dalrymple White. |
| 53 $\frac{1}{8}$ | 7 $\frac{3}{8}$ | ... | 47 | 49 $\frac{3}{4}$ | ... | 8+7 palmated | Do. . | Ford G. Barclay. |
| 53 | 6 $\frac{1}{4}$ | ... | 36 | 40 $\frac{1}{4}$ | 45 | 7+6 | Do. . | Lord Falconer. |

* - Owner's measurements.

¹ Shot by Sir G. Gore, Bart.



Skull and Antlers of West American Wapiti.

**B.—WEST AMERICAN WAPITI (*C. canadensis occidentalis* =
C. roosevelti).**

Apparently very closely allied to the typical Rocky Mountain race, but with the head, neck, and limbs blacker in the winter dress. The antlers show considerable tendency to cupping and palmation, and in some cases the portion above the fifth tine is aborted. The range of this form extends from British Columbia and Vancouver to Oregon.

| Length on outside curve. | Circumference between bez and trez. | Tip to Tip. | Widest inside. | Widest outside. | Points. | Locality. | Owner. |
|--------------------------|-------------------------------------|-------------|----------------|-----------------|---------|---------------|-------------------------|
| 52 | 8½ | 37 | 40 | ... | 6+6 | Vancouver . . | Barclay Bonthron. |
| 51½ | 6¾ | 35 | 36½ | 39½ | 6+6 | Do. . . | J. M. Hanbury. |
| -49½ | 6½ | 38 | 46½ | ... | 10+7 | Do. . . | A. E. Leatham. |
| 48 | 7½ | 32¾ | 36½ | 34½ | 6+7 | Do. . . | W. R. Thompson. |
| 47 | 6¾ | 37 | 34 | 41½ | 8+7 | Do. . . | J. M. Hanbury. |
| -45 | 7½ | 37 | 37 | ... | 7+8 | Do. . . | Clive Phillipps-Wolley. |

Two other forms of wapiti have been described from North America, namely, *C. canadensis merriami*, of the White Mountains, Arizona, and *C. canadensis nannodes*, of the San Joaquin Valley, California. The latter is a small, pale-coloured race, with much white on the ears, a small rump-patch, and the front of the legs and feet golden fulvous.

C.—TIAN-SHAN WAPITI (*C. canadensis songaricus*).

Judging by the mounted specimen in the British Museum and numerous examples of the antlers, this race differs from the typical wapiti by the rump-patch being narrower, more orange in colour, and not including the middle line of the tail, which is coloured like the back. There is more black on the borders of the rump-patch, the thighs, and the flanks, and the general colour is greyer. The antlers are very large and have the fourth tine shorter and stouter. This wapiti inhabits the Tian-Shan range in the neighbourhood of Kulja; it was first described by Dr. Severtzow under the name of *C. maral*, var. *songarica*, and subsequently by Dr. Blanford, on the evidence of detached antlers obtained by the Second Yarkand Mission, as *C. eustephanus*.

| Length on outside curve. | Circumference. | Tip to Tip. | Widest inside. | Spread. | Points. | Locality. | Owner. |
|--------------------------|----------------|-------------|----------------|---------|---------|---------------------|-------------------------------|
| 60 | 8½ | 62½ | 45½ | 70 | 10+9 | Tian Shan . . | Capt. J. N. Price Wood. |
| 56½ | 7½ | 37½ | 37½ | 40½ | 6+6 | Do. . . | G. L. Harrison. |
| ¹ -55 | 8 | ... | ... | ... | 6+7 | Bought at Kashgar . | Earl of Northbrook. |
| 54 | 7½ | 49 | 46¾ | 50½ | 7+6 | Tian Shan . . | P. Church. |
| -53 | 9 burr | ... | ... | ... | 8+6 | ? | American National Collection. |

- Owner's measurements.

¹ Shed antlers bought by the late Sir Douglas Forsyth.



Skull and Antlers of Tian-Shan Wapiti, shot by Mr. P. Church at Tarbagatai.

| Length on outside curve. | Circum- ference. | Tip to Tip. | Widest inside. | Spread. | Points. | Locality. | Owner. |
|-----------------------------------|---------------------|----------------|-------------------|---------|---------|-----------|-------------------------|
| 53½ | 7½ | ... | ... | ... | 7+7 | Tian Shan | P. Church. |
| 53 | 6¾ | 30½ | 39 | 46 | 6+6 | Do. | J. V. Phelps. |
| 53 | 6⅞ | 46 | 41 | 49 | 8+8 | ? | Duke of Bedford. |
| 51 | 6½ | 39¾ | 40¾ | 50½ | 6+5 | Tian Shan | A. Ezra. |
| 51 | 6¾ | 43¼ | 44½ | 46¾ | 7+6 | Do. | St. George Littledale. |
| 51 | 8 | 44½ | 51 | 55 | 8+7 | Do. | Col. H. Appleton. |
| 50½ | 9 | ... | ... | ... | 10+9 | Do. | P. Church. |
| 50 | 6¾ | 39 | 43 | 51 | 6+6 | Do. | Lord Osborne Beauclerk. |
| 50 | 6½ | 26 | 35 | 38 | 7+6 | Do. | A. Bayley-Worthington. |

| Length on outside curve. | Circum- ference. | Tip to Tip. | Widest inside. | Spread. | Points. | Locality. | Owner. |
|-----------------------------------|---------------------|------------------|-------------------|------------------|---------|-----------------|-------------------------|
| 49 $\frac{1}{4}$ | 6 $\frac{5}{8}$ | 45 $\frac{3}{4}$ | 54 | 55 | 6+6 | Tian Shan . . . | Capt. J. N. Price Wood. |
| 48 | 6 $\frac{1}{2}$ | 45 | 41 | 55 $\frac{1}{2}$ | 8+8 | Kulja . . . | Duke of Bedford. |
| 47 | 6 $\frac{3}{4}$ | 24 $\frac{3}{4}$ | 32 $\frac{1}{2}$ | 41 | 7+6 | ? . . . | Col. H. G. C. Swayne. |
| 46 $\frac{1}{2}$ | 6 | 36 | 40 $\frac{1}{2}$ | 43 | 6+6 | ? . . . | S. W. Carpenter. |
| 46 $\frac{1}{2}$ | 7 | 37 $\frac{1}{2}$ | 39 $\frac{3}{8}$ | 44 | 8+7 | Tian Shan . . . | P. F. Hadow. |
| 46 | 8 | 46 $\frac{1}{2}$ | 44 | 50 | 6+6 | Do. . . . | R. F. Glyn. |
| 45 $\frac{1}{2}$ | 7 | 27 $\frac{3}{4}$ | 35 $\frac{3}{4}$ | 40 $\frac{1}{2}$ | 7+7 | Do. . . . | P. B. Vander Byl. |
| 45 $\frac{1}{4}$ | 5 $\frac{1}{4}$ | 42 $\frac{1}{2}$ | 41 $\frac{3}{4}$ | 44 $\frac{1}{2}$ | 6+6 | Do. . . . | R. Hayne. |
| 45 $\frac{1}{4}$ | 7 | 26 $\frac{1}{2}$ | 37 $\frac{1}{4}$ | 40 $\frac{3}{4}$ | 6+6 | Do. . . . | Col. H. Appleton. |

— Owner's measurements.

D.—**BAIKAL WAPITI** (*C. canadensis asiaticus*).

Antlers less massive and lighter-coloured than those of the Tian-Shan race, with the 4th tine inclined outwards instead of inwards, and having only a slight bend at the tip, and with the beam at this point curving gradually inwards and backwards, so that the backward inclination is less marked than in the latter. Typically the Sayansk and Baikal Mountains west of Lake Baikal. Also known as *C. sibiricus*.

| Length on outside curve. | Circum- ference. | Tip to Tip. | Widest inside. | Spread. | Points. | Locality. | Owner. |
|-----------------------------------|---------------------|------------------|-------------------|---------|---------|---------------|------------------|
| 50 $\frac{3}{4}$ | 6 | 29 $\frac{1}{2}$ | 38 $\frac{1}{2}$ | ... | 8+7 | Altai ? . . . | Duke of Bedford. |
| 45 $\frac{1}{2}$ | 6 $\frac{1}{4}$ | 34 $\frac{1}{4}$ | 39 $\frac{1}{2}$ | 47 | 5+5 | Altai ? . . . | H. J. Elwes. |
| 48 $\frac{1}{2}$ | 7 $\frac{3}{4}$ | ... | single horn | | 7 | ? . . . | British Museum. |

E.—**BACTRIAN WAPITI** (*C. canadensis bactrianus*).

Named on the evidence of a specimen formerly living in the Zoological Gardens at Moscow, which was at first regarded as related to the shou, although its wapiti-affinities were subsequently revealed by specimens from Chenkend, Turkestan, the head of one of which is now mounted in the British Museum. The colour is very light grey, and the dark markings on the lips differ from those of other wapiti. Has also been named *C. hagenbecki*.

Distribution.—Chenkend and adjacent districts. The antlers of the British Museum specimen are somewhat malformed, and have therefore not been measured.

| Length on outside curve. | Circum- ference. | Tip to Tip. | Widest inside. | Spread. | Points. | Locality. | Owner. |
|-----------------------------------|---------------------|------------------|-------------------|---------|---------|-----------|------------------|
| 4 | 6 | 26 $\frac{1}{4}$ | ... | ... | 6+4 | Turkestan | Duke of Bedford. |

F.—MANCHURIAN WAPITI (*C. canadensis xanthopygus*).

Antlers of a shorter and stouter type than in the Tian-Shan wapiti, with the fourth tine relatively smaller in immature specimens, and the portion above it less developed at all ages. In the 5-tined antlers of sub-adult stags the tips of the fourth and fifth tines curve towards one another like crabs' claws. General colour in winter brownish grey, in summer bright reddish brown, with the dark winter mane and under-parts of other wapiti. Also known as *C. bedfordi*.

Distribution.—Northern Manchuria in the Upper Ussuri district.

| Length on outside curve. | Circum- ference. | Tip to Tip. | Widest inside. | Spread. | Points. | Locality. | Owner. |
|-----------------------------------|---------------------|------------------|-------------------|------------------|---------|-----------------|-------------------------------|
| 38 $\frac{1}{2}$ | 7 $\frac{5}{8}$ | ... | ... | ... | 6+6 | ? | American National Collection. |
| 33 $\frac{1}{2}$ | 5 | 23 | 26 $\frac{3}{4}$ | 28 $\frac{1}{4}$ | 6+5 | N. E. Manchuria | A. J. A. Douglas. |
| 33 $\frac{1}{4}$ | 5 $\frac{3}{4}$ | 18 $\frac{1}{2}$ | 21 $\frac{1}{2}$ | ... | 6+6 | ? | H. J. Elwes. |
| 32 $\frac{1}{4}$ | 5 $\frac{1}{4}$ | 26 $\frac{7}{8}$ | 26 $\frac{3}{8}$ | 29 $\frac{7}{8}$ | 7+5 | ? | Do. |
| 31 $\frac{3}{4}$ | 6 | 17 | 25 $\frac{3}{4}$ | 29 | 8+7 | ? | Duke of Bedford. |

— Owner's measurements.

Luchdorf's Wapiti (*C. c. luchdorfi*) appears to differ from *xanthopygus* by not turning red in summer. The type specimen came from Transbaikalia, and was probably brought from the Bureatish Steppe of Northern Manchuria.

The Obi Wapiti (*C. c. biedermanni*) comes from Lake Teletz at the source of the Obi, and Barnoul, lower down the same valley.



Skull and Antlers of Japanese Sika.

The SIKA DEER (*Cervus* [*Pseudaxis*] *sica*).

The Japanese sika deer is the typical representative of a group of deer in which the antlers are shorter and simpler than is usually the case in the red deer group, and have generally four tines, including a trez, but lacking a bez. The coat is spotted, at least in summer, and there is a black-bordered white area in the region of the tail, which is relatively long. They constitute the sub-genus *Pseudaxis*. In the typical species the tail is white at the tip, but black above for at least some part of its length; and the gland on the hind cannon-bone is covered with white hairs. The coat is chestnut-red with numerous white spots in summer, and browner, with no (or only indistinct traces of) spots in winter. These deer are distributed over Northern China, Manchuria, Japan, and the Liu Kiu Islands, where they are represented by two or three races differing chiefly in size. In the Japanese deer (*C. sica typicus*), which inhabits Japan and Northern China, the height at the shoulder varies from about 2 feet 8 inches to 2 feet 10 inches, whereas in the Manchurian deer (*C. sica manchuricus*) it reaches 3 feet 3 inches. The Liu Kiu race is not yet named. Both the Japanese and the Manchurian races have been acclimatised in English and Irish

parks. Weight (W. Winans), 180 lbs.—12 stone clean (Marquis of Waterford).

A.—JAPANESE SIKA (*C. sica typicus*).

| Length on out- side curve. | Circum- ference. | Tip to Tip. | Points. | Locality. | Owner. |
|-------------------------------------|---------------------|------------------|---------|-----------------------|------------------------------------|
| 26 $\frac{1}{2}$ | 3 $\frac{3}{4}$ | 19 $\frac{1}{4}$ | 4+4 | ? | British Museum. |
| 25 $\frac{1}{2}$ | 5 | 17 $\frac{3}{8}$ | 4+4 | Japan | The late Sir Douglas Brooke, Bart. |
| 25 $\frac{3}{8}$ | 4 $\frac{1}{8}$ | 20 $\frac{1}{4}$ | 4+4 | Do. | Sir Edmund G. Loder, Bart. |
| 22 $\frac{1}{2}$ | 4 | 16 | 5+4 | Bred in England . . . | H.R.H. the Duc d'Orleans. |
| ¹ 22 $\frac{1}{4}$ | 3 $\frac{3}{8}$ | 12 $\frac{1}{2}$ | 4+3 | Bred in Ireland . . . | Marquis of Lansdowne. |
| 22 | 4 | 16 $\frac{3}{4}$ | 5+4 | Do. | Sir Victor Brooke's Collection. |
| 21 $\frac{1}{2}$ | 3 $\frac{3}{8}$ | 13 $\frac{3}{4}$ | 4+4 | Do. | Hon. Walter Rothschild. |
| 20 $\frac{1}{8}$ | 3 $\frac{1}{2}$ | 12 $\frac{3}{4}$ | 4+4 | Wood Norton | H.R.H. the Duc d'Orleans. |
| 20 | 3 $\frac{1}{2}$ | 12 $\frac{3}{4}$ | 4+3 | Surrenden Park . . . | W. Winans. |
| 19 $\frac{1}{4}$ | 3 $\frac{1}{2}$ | 17 $\frac{3}{4}$ | 4+4 | Ireland | V. Brooke. |
| 18 $\frac{1}{2}$ | 3 $\frac{3}{4}$ | ... | 9 | Do. | Sir Victor Brooke's Collection. |
| 17 $\frac{1}{4}$ | 3 | 16 $\frac{1}{4}$ | 4+4 | Woburn | Duke of Bedford. |
| 16 | 3 $\frac{1}{2}$ | 13 $\frac{1}{2}$ | 3+3 | Ireland | C. E. Russell. |
| 16 $\frac{5}{8}$ | 3 | 9 $\frac{5}{8}$ | 4+3 | Do. | Hon. John Ward. |
| ² 15 $\frac{1}{2}$ | 2 $\frac{3}{4}$ | 14 $\frac{1}{4}$ | 4+4 | Do. | Marquis of Hamilton. |

¹ 12 stone clean.

² Weight 143 lbs. as it fell.

B.—MANCHURIAN SIKA (*C. sica manchuricus*).

| Length on out- side curve. | Circum- ference. | Tip to Tip. | Points. | Weight. | Locality. | Owner. |
|-------------------------------------|---------------------|------------------|---------|----------|-------------------|------------------|
| —26 | 4 $\frac{1}{4}$ | 13 $\frac{3}{8}$ | 4+4 | ... | Manchuria | Paris Museum. |
| 23 | 3 $\frac{1}{2}$ | 18 $\frac{1}{4}$ | 4+4 | ... | Do. | Duke of Bedford. |
| 23 | 5 $\frac{1}{4}$ | 15 $\frac{3}{4}$ | 3+4 | 164 lbs. | Do. | W. Winans. |
| 20 $\frac{1}{4}$ | 3 $\frac{1}{2}$ | 16 | 4+4 | 153 lbs. | Do. | Do. |

— Owner's measurements.

The following specimens are from hybrids between Japanese and Red Deer.

| Length on out- side curve. | Circum- ference. | Tip to Tip. | Widest inside. | Points. | Weight. | Locality. | Owner. |
|-------------------------------------|---------------------|------------------|-------------------|---------|-----------------|-----------------|-----------------------|
| 29 $\frac{1}{4}$ | 4 $\frac{1}{2}$ | 17 $\frac{3}{4}$ | 21 | 5 + 4 | 14 st. | Bred in Ireland | Viscount Powerscourt. |
| 28 $\frac{1}{4}$ | 4 $\frac{1}{4}$ | 14 $\frac{1}{4}$ | 18 | 5 + 4 | 14 st. clean | Do. | Do. |
| 26 $\frac{1}{2}$ | 4 | 21 $\frac{1}{2}$ | 21 | 4 + 4 | ... | Do. | Do. |

The FORMOSAN SIKA (*Cervus* [*Pseudaxis*] *taëvanus*).

Nearly allied to the typical sika, but distinctly spotted in winter, when the coat retains more or less of the rufous summer-tinge. The dark line down the middle of the back is very strongly marked, there is a more distinct black bar above the white tail-patch, and the limbs are shorter and the body proportionately longer. The height at the shoulder is about 2 feet 11 inches. This species is confined to the mountains of the island of Formosa.

| Length. | Circum- ference. | Tip to Tip. | Widest inside. | Points. | Locality. | Owner. |
|------------------|---------------------|----------------|-------------------|---------|---------------|------------------|
| 19 $\frac{3}{4}$ | 3 $\frac{3}{8}$ | 13 | 16 $\frac{3}{8}$ | 4 + 4 | Formosa . . . | British Museum |
| 19 | 3 $\frac{1}{4}$ | ... | ... | 4 + 4 | Do. . . . | Duke of Bedford. |



Head of Pekin Sika.

The PEKIN SIKA or DYBOWSKI'S DEER (*Cervus* [*Pseudaxis*] *hortulorum*).

In addition to its larger size (between 3 feet 7 inches and 4 feet at the shoulder), this species is distinguished from the Manchurian sika by the hairs covering the gland on the hind cannon-bone being of the same colour as the rest of the coat in summer and only slightly grizzled in winter, and by the tip of the tail being apparently white. The head and neck are bluish grey, and in immature animals spots persist in the winter coat, although these disappear completely at this season in fully adult bucks, in which the coat becomes very long and shaggy, especially on the throat and neck. Hinds are more brightly coloured in winter than the stags, and retain distinct spotting. This deer was named *C. hortulorum* by Consul Swinhoe from an immature buck and doe taken at the sack of the Summer Palace, Pekin, and was afterwards obtained in the wild state in the Ussuri district of North-eastern Manchuria, when it received the name of *C. dybowskii*. In the typical Manchurian race (*C. hortulorum typicus*) there is no dark line down the back; but this is present in the smaller southern race (*C. hortulorum kopschi*) of the Yang-tsi valley.

| Length on out- side curve. | Circum- ference. | Tip to Tip. | Widest inside. | Points. | Locality. | Owner. |
|-------------------------------------|---------------------|------------------|-------------------|---------|----------------|-----------------------------------|
| 34 $\frac{1}{4}$ | 5 $\frac{3}{4}$ | 34 $\frac{1}{2}$ | 25 $\frac{1}{2}$ | 5 + 5 | ? | British Museum (Duke of Bedford). |
| 32 $\frac{3}{4}$ | 5 $\frac{1}{2}$ | 23 $\frac{7}{8}$ | 22 $\frac{3}{4}$ | 4 + 4 | N.E. Manchuria | A. J. A. Douglas. |
| 32 $\frac{1}{4}$ | 4 $\frac{1}{2}$ | 16 $\frac{1}{2}$ | 23 $\frac{1}{2}$ | 4 + 4 | (Shed horns) | Duke of Bedford. |
| 32 | 4 $\frac{1}{4}$ | 27 | 24 $\frac{3}{8}$ | 4 + 4 | Do. | Do. |
| 31 $\frac{1}{2}$ | 5 $\frac{1}{4}$ | 27 $\frac{1}{8}$ | 26 $\frac{3}{4}$ | 4 + 4 | Do. | Sir Edmund G. Loder, Bart. |
| 31 $\frac{1}{2}$ | 4 $\frac{1}{2}$ | 18 $\frac{1}{2}$ | ... | 4 + 4 | Do. | Hon. Walter Rothschild. |
| 29 $\frac{5}{8}$ | 4 $\frac{3}{8}$ | 27 $\frac{1}{4}$ | 21 | 5 + 5 | Do. | W. Banks. |
| 27 $\frac{1}{2}$ | 4 $\frac{3}{8}$ | 16 $\frac{1}{2}$ | 19 $\frac{1}{4}$ | 4 + 4 | Do. | A. Hardcastle. |
| 27 | 4 $\frac{1}{8}$ | 23 $\frac{1}{2}$ | 20 | 4 + 4 | Manchuria | Hon. Walter Rothschild. |
| 26 | 3 $\frac{3}{4}$ | 18 | 15 $\frac{1}{2}$ | 4 + 4 | Do. | E. P. Tennant. |



Pekin or Dybowski's Stag in summer coat, with the antlers in velvet.
 Photographed by the Duchess of Bedford.



Head of Fallow Deer Buck.

The FALLOW DEER (*Cervus* [*Dama*] *dama*).

Antlers normally without a bez, but with a trez-tine, above which the beam is palmated, with numerous snags on the hind edge. Coat spotted with white in summer (except in the black breed), with a black-bordered white area in the neighbourhood of the long tail. Height at shoulder about 3 feet; weight about 140 lbs. clean.¹ The original distribution includes Greece, Spain, Portugal, Anatolia, Rhodes, Sardinia, Asia Minor, Northern Palestine, and North-Western Africa, but the species has been introduced into Great Britain and some other countries. In Asia Minor wild fallow deer are found along the south coast as far as Adana, and at one spot in the interior; whether they still exist in North Africa is doubtful.

| Length on out- side curve. | Circum- ference. | Tip to Tip. | Spread inside. | Points. | Width of Palm. | Locality. | Owner. |
|-------------------------------------|---------------------|----------------|-------------------|---------|-------------------|------------|--------------------------------------|
| 32 | 4½ | 18 | 28 | 12 + 10 | 5½ | Woburn . . | Duke of Bedford. |
| 31 | 5 | ... | ... | 30 | 7 | ? | Sir Victor Brooke's Collec- tion. |

¹ Black specimen shot by W. Winans, September 1909, weighed 240 lbs.

² Recorded by J. G. Millais (*British Deer and their Horns*).

| Length on out- side curve. | Circum- ference. | Tip to Tip. | Spread inside. | Points. | Width of Palm. | Locality. | Owner. |
|-------------------------------------|---------------------|----------------------|-------------------|---------|-------------------|--------------------|--------------------------------------|
| ¹ 30 | 4 $\frac{3}{4}$ | 23 $\frac{1}{2}$ | 26 $\frac{1}{2}$ | 10+9 | 4 $\frac{1}{2}$ | Drummond Castle | J. G. Millais. |
| 30 | 4 | 19 $\frac{1}{4}$ | 24 | 11+11 | 6 | ? | Douglas M'Douall. |
| 30 | 4 $\frac{1}{2}$ | 22 | 37 outside | 16+10 | 7 | Drummond Castle | J. G. Millais. |
| -29 $\frac{1}{2}$ | 5 | 17 | 28 $\frac{1}{2}$ | 14+13 | 7 $\frac{1}{4}$ | Petworth Park | Do. |
| 29 $\frac{1}{4}$ | 4 $\frac{1}{8}$ | ... | ... | 14+11 | 8 | Woburn | Duke of Bedford. |
| 28 $\frac{1}{2}$ | 4 | 15 $\frac{1}{4}$ | 23 | 9+8 | 5 $\frac{3}{4}$ | Essex | W. H. Wilson. |
| 28 $\frac{1}{2}$ | 4 $\frac{1}{8}$ | 18 | 24 $\frac{3}{4}$ | 8+6 | 4 | New Forest | E. Festus Kelly. |
| ² 28 $\frac{1}{2}$ | 4 | 14 $\frac{1}{2}$ | 26 | 10+11 | 6 | Woburn | Duke of Bedford. |
| 28 $\frac{1}{2}$ | 5 | ... | 30 | 22 | ... | Otago, New Zealand | Rev. W. C. Oliver. |
| ³ 28 $\frac{1}{2}$ | 4 | (Span 34) outside | | 19 | 6 | Colebrooke | Sir Victor Brooke's Collec- tion. |
| ⁴ 28 | 4 | (26) | | 18 | 5 | Do. | Do. |
| ⁵ 28 | 4 $\frac{1}{4}$ | 26 | 26 | 23 | ... | Surrenden Park | W. Winans. |
| 27 $\frac{1}{2}$ | 4 $\frac{1}{4}$ | 15 $\frac{3}{4}$ | 20 $\frac{1}{2}$ | 8+9 | 4 $\frac{3}{4}$ | Windsor | Sir Charles Wakefield. |
| 27 $\frac{1}{4}$ | 4 | 23 | ... | 10+8 | ... | England | J. Carr Saunders. |
| -27 | ... | ... | ... | ... | ... | Nr. Blair Castle | Dowager Duchess of Atholl. |
| 26 $\frac{7}{8}$ | 3 $\frac{5}{8}$ | 12 | 17 $\frac{1}{2}$ | 10+7 | ... | ? | British Museum. |
| -26 $\frac{1}{2}$ | 4 $\frac{1}{4}$ | 23 $\frac{1}{2}$ | 20 $\frac{1}{2}$ | 9+7 | 5 $\frac{7}{8}$ | Perthshire | A. Basil Brooke. |
| -26 | 5 | 20 $\frac{3}{4}$ | 23 $\frac{3}{4}$ | 10+10 | 4 $\frac{1}{2}$ | Tasmania | T. W. H. Clarke. |
| -26 | 5 $\frac{1}{4}$ | 20 | 22 $\frac{1}{2}$ | 11+13 | 7 | Ashton Park | J. Whitaker. |
| 25 $\frac{3}{4}$ | 3 $\frac{1}{4}$ | 13 $\frac{1}{2}$ | 23 $\frac{1}{2}$ | 13+12 | 5 | ? | T. G. A. Moncrieffe. |
| ⁶ 25 $\frac{1}{2}$ | 3 $\frac{1}{4}$ | 17 $\frac{3}{4}$ | 24 $\frac{1}{4}$ | 10+10 | 6 | Surrenden Park | W. Winans. |
| 25 | 3 $\frac{1}{2}$ | 15 $\frac{1}{2}$ | ... | 10+10 | 4 | Northamptonshire | H. H. the Maharaja of Bikanir. |
| -24 | 3 $\frac{1}{2}$ | 27 | 21 $\frac{1}{2}$ | 23 | ... | Surrenden Park | W. Winans. |

- Owner's measurements.

¹ Weight of antlers, 8 lbs. 1 oz. on skull; no lower jaw (Millais, *British Deer*).

² Weight dressed, 165 lbs.

³ Seven years old; as he fell, 237 $\frac{1}{2}$ lbs.; 198 lbs. cleaned.

⁴ Seven years old; as he fell, 224 lbs. (Millais, *op. cit.*).

⁵ Weight, 218 lbs.

⁶ Weight, 222 lbs.



Head of Mesopotamian Fallow Deer. From a specimen in the British Museum.

The MESOPOTAMIAN FALLOW DEER (*Cervus* [*Dama*] *mesopotamicus*).

Larger and brighter coloured than the ordinary fallow deer, with the spots near the middle of the back tending to form longitudinal stripes, and the tail wholly white. Antlers of a totally different type, being somewhat expanded at the origin of the trez-tine (which is large, and situated some distance above the short brow-tine), but at the summit only moderately flattened, and breaking up on the hind border into several snags. Weight about 24 stone, clean.

Distribution.—The mountains of Luristan in Mesopotamian Persia and part of Asia Minor.

| Length on out- side curve. | Circum- ference. | Tip to Tip. | Spread inside. | Points. | Width of Palm. | Locality. | Owner. |
|-------------------------------------|---------------------|----------------|-------------------|---------|-------------------|--------------------------|-------------------------------|
| 36½ | 4¼ | 16¾ | ... | 12 + 15 | 5¾ | Karabogha, Asia Minor | F. E. Whittall. |
| 29 | 4½ | 30½ | 24½ | 10 + 11 | 5½ | Asia Minor . . | Do. |
| 21¼ | 3½ | 14½ | ... | 9 + 7 | ... | Do. . . | Paris Museum (Abbé David). |
| 20¼ | 5 | 14 | ... | 6 + 5 | ... | Luristan Mts. . | Sir Edmund G. Loder, Bart. |

— Owner's measurements.



Skull and Antlers of extinct Giant Irish Deer (Irish Elk).

The GIANT IRISH DEER (*Cervus* [? *Dama*] *giganteus*).

(Commonly called "Irish Elk.")

An extinct deer, probably standing at least 6 feet at the shoulder, with the antlers enormously expanded, and carrying several large tines on the front border, of which the one above the trez is the longest; the brow-tine being often flattened and forked. In its typical form this magnificent deer occurs in the Prehistoric deposits of Ireland, England, and probably some of the western districts of the Continent. In the skull the vomer is welded to the adjacent bones.

| Spread Tip to Tip. | Length round inside of antler. | Length of both antlers across skull. | Circum- ference above burr. | Width of Palm. | Points. | Owner. |
|-----------------------|--------------------------------------|--|-----------------------------------|-------------------|---------|----------------------------|
| ft. in. | ft. in. | ft. in. | | | | |
| -12 6 | ... | ... | ... | 12 | 7+7 | Duke of St. Albans. |
| -11 6 | ... | ... | ... | 20 | ... | Marquis of Londonderry. |
| -11 5 | 6 3 | ... | 9 $\frac{11}{16}$ | 17 | 11+11 | Dublin Museum. |
| -11 3 | 7 5 $\frac{1}{2}$ | ... | 12 $\frac{1}{4}$ | 19 $\frac{1}{4}$ | 17 | Mrs. Donaldson-Hudson. |
| -11 1 $\frac{1}{2}$ | 6 9 $\frac{1}{2}$ | ... | 9 $\frac{1}{4}$ | 16 $\frac{1}{2}$ | 23 | Sir Peter Walker, Bart. |
| -10 4 $\frac{1}{2}$ | 6 9 | 13 10 | 12 | 20 | ... | Earl of Bessborough. |
| 10 2 | 5 8 $\frac{1}{2}$ | ... | 9 $\frac{7}{8}$ | 19 $\frac{1}{4}$ | 19 | British Museum. |
| -10 2 | ... | ... | ... | ... | ... | Thomas Bate. |
| 9 8 | ... | ... | ... | 20 | 12+11 | Hon. Walter Rothschild. |
| 9 5 | 6 2 | 12 5 | 11 | 21 $\frac{1}{4}$ | 11+11 | Viscount Powerscourt. |
| 9 5 | 6 0 | 12 10 | 13 $\frac{1}{2}$ | 21 $\frac{1}{8}$ | 15+13 | Sir Edmund G. Loder, Bart. |

- Owner's measurements.

| Spread Tip to Tip. | Length round inside of antler. | Length of both antlers across skull. | Circum- ference above burr. | Width of Palm. | Points. | Owner. |
|-----------------------|--------------------------------------|--|-----------------------------------|-------------------|---------|---------------------------------|
| ft. in. | ft. in. | ft. in. | | | | |
| 9 3 | 6 2 | 13 5 | 10 | 24 | 12 + 10 | Duke of Westminster. |
| 9 2 | ... | 13 6 | ... | 15½ | ... | Mrs. Graham Lloyd. |
| 9 2 | ... | 11 10 | 10¼ | 22¼ | 9 + 9 | Dublin Museum. |
| 9 2 | ... | ... | ... | ... | 20 | Thomas Bate. |
| 8 11 | 5 10 | ... | 11¼ | 17 | 9 + 9 | Viscount Powerscourt. |
| 8 10 | 5 9 | 11 9½ | 9¼ | 17 | 12 + 11 | Duke of Westminster. |
| 8 10 | ... | 12 10 | ... | 13½ | ... | Mrs. Graham Lloyd. |
| 8 7 | 5 9½ | ... | 10 | 20 | 12 + 12 | Viscount Powerscourt. |
| 7 6 | 5 3½ | ... | 8½ | ... | 10 + 11 | Sir Victor Brooke's Collection. |

- Owner's measurements.



Frontlet and Antlers of Indian Sambar. From a specimen in the British Museum.

The SAMBAR DEER (*Cervus* [*Rusa*] *unicolor*).

The typical representative of the *rusina* group of deer, in which the antlers are rounded and three-tined, both the bez and trez being wanting, and the summit of the beam simply forked. The tail is long and bushy, the tear-gland and the pit in the skull for its reception are very large, and the upper ends of the nasal bones of the skull are expanded. In the typical sambar the height reaches to 5 feet at the shoulder. Antlers large and rough, with the brow-tine given off at an acute angle to the beam, and the two terminal tines of nearly equal length. Hair coarse and shaggy, uniformly dark umber-brown, with some chestnut on the buttocks, in the adult. Face-glands very large, and capable of being turned inside out. Ears large, and the tail relatively long and bushy. Young uniformly coloured or spotted.

Distribution.—The wooded districts of India, Ceylon, the Malay countries, the Philippines, Formosa, Bonin Island, and parts of China.

A.—INDIAN SAMBAR (C. unicolor typicus).

Size very large, young uniformly coloured; weight about 600 lbs., when cleaned 415 lbs.

The longest pair of antlers, from the Central Provinces, measured 48 inches along the curve inside (= nearly 50 inches on outside curve). They were sent to Mr. A. O. Hume by Mr. R. Blewitt.

Distribution.—The wooded districts of India and Ceylon.

| Length on outside curve. | Circumference above brow-line. | Tip to Tip. | Widest inside. | Points. | Locality. | Owner. |
|--------------------------|--------------------------------|---------------------------|------------------|---------|---------------------------|-----------------------------------|
| -50 $\frac{1}{8}$ | 9 $\frac{3}{8}$ | 24 | ... | 3+3 | Bhopal . . . | Col. Obeidulla Khan. |
| 48 | 7 | Single shed specimen | | 3 | Khandesh . . . | R. H. Madan. |
| -47 $\frac{3}{4}$ | ... | ... | 28 $\frac{1}{2}$ | ... | Cent. Provinces . . . | A. P. Perceval. |
| -46 $\frac{7}{8}$ | ... | 49 | ... | 3+3 | Do. . . . | R. Wordsworth. |
| 46 $\frac{1}{2}$ | 6 $\frac{1}{4}$ | 36 $\frac{3}{4}$ | 41 $\frac{1}{4}$ | 3+3 | Do. . . . | Duncan J. A. Campbell. |
| 46 $\frac{1}{2}$ | 6 $\frac{3}{8}$ | 24 $\frac{1}{8}$ | 30 $\frac{7}{8}$ | 3+3 | Do. . . . | A. O. Hume. |
| -46 $\frac{1}{2}$ | ... | 45 | ... | ... | Garhwal . . . | R. M. Nash. |
| 46 | 9 | ... | ... | ... | ? | C. J. Lucas. |
| -45 $\frac{1}{4}$ | 7 $\frac{1}{4}$ | 38 | 42 $\frac{1}{2}$ | 3+3 | Sangor, C.P. . . . | Lieut.-Col. R. W. Mapleton. |
| 45 $\frac{1}{8}$ | 6 $\frac{5}{8}$ | 17 $\frac{3}{4}$ | 32 $\frac{1}{8}$ | 3+3 | ? | British Museum (Dr. H. Falconer). |
| 45 | 7 $\frac{3}{8}$ | 22 $\frac{1}{2}$ | 33 $\frac{3}{4}$ | 3+3 | Mayoghur, Cent. Provinces | Sir John Morris. |
| 45 | 7 $\frac{3}{4}$ | 8 | ... | 3+3 | ? | D. R. Wright. |
| ¹ -45 | ... | ... | ... | ... | Cent. Provinces . . . | Bombay Natural History Society. |
| -45 | 9 | ... | ... | ... | Orissa . . . | H. H. the Maharaja of Travancore. |
| -45 | 8 | Picked up by Dr. G. Jones | | | Cent. Provinces (?) . . . | Heighway Jones. |
| 44 $\frac{1}{4}$ | 6 | 26 | 32 $\frac{1}{2}$ | 3+3 | ? | Major F. Jollie. |
| 44 $\frac{1}{8}$ | 7 $\frac{7}{8}$ | 44 $\frac{3}{8}$ | 45 $\frac{7}{8}$ | 3+3 | Rangeer . . . | Col. W. J. Morris. |
| 44. | 6 | 9 $\frac{1}{4}$ | 24 $\frac{3}{8}$ | 3+3 | Rewa . . . | Major C. F. Pinney. |
| 44 | 6 $\frac{7}{8}$ | 19 $\frac{1}{4}$ | 31 $\frac{3}{4}$ | 3+3 | Do. . . . | H. E. M. Davies. |
| 43 $\frac{5}{8}$ | 5 $\frac{5}{8}$ | Single horn | | 3+3 | Do. . . . | British Museum (Hume Collection). |

— Owner's measurements.

¹ This is the measurement of only a portion of a Sambar antler, and was recorded in the *Journal of the Bombay Natural History Society*, iii. p. 228. The animal was shot by Mr. R. Gilbert in the Central Provinces, but got away minus this piece of his antler.



Head of Indian Sambar.

| Length on outside curve. | Circum- ference above brow-tine. | Tip to Tip. | Widest inside. | Points. | Locality. | Owner. |
|-----------------------------------|---|----------------|-------------------|---------|---------------------|---------------------------------|
| 43½ | 5½ | 17 | 28 | 3+3 | Rewa . . . | Sir E. P. Bates. |
| 43½ | 6 | 32 | 43½ | 3+3 | Cent. Provinces . . | J. H. Beckett. |
| 43¾ | 6½ | 20¾ | 29½ | 3+3 | Do. . . | Sir Robert Harvey, Bart. |
| 43½ | 6 | 26½ | 34¾ | 3+3 | Do. . . | C. A. Mortimore. |
| 43 | 6 | 38 | 43½ | 3+3 | ? | J. H. Beckett. |
| 43 | 6 | 24½ | 30 | 3+3 | Khandesh . . . | A. Cumine. |
| 43 | 6½ | 33 | 35 | 4+3 | Cent. Provinces . . | H. W. Seton Karr. |
| 42¾ | 5¾ | 26 | 32½ | 3+3 | Do. . . | A. H. Pollen. |
| 42½ | 6½ | 15 | 27¾ | 4+4 | Ghats of Simrol . . | British Museum (Col. J. Evans). |
| 42 | 6½ | 23¾ | 35½ | 3+3 | ? | Capt. A. H. Bailey. |
| 42 | 8 | 28 | ... | ... | Upper Burma . . . | H. Shaw Dunn. |

| Length on outside curve. | Circum- ference above brow-tine. | Tip to Tip. | Widest inside. | Points. | Locality. | Owner. |
|-----------------------------------|---|-----------------|-------------------|---------|---------------------|---------------------------------------|
| $41\frac{7}{8}$ | $6\frac{1}{4}$ | $33\frac{1}{8}$ | $35\frac{1}{4}$ | 3 + 3 | Western Ghats . . | The late Major-Gen. Sir Arthur Ellis. |
| $41\frac{5}{4}$ | 7 | $28\frac{1}{4}$ | $34\frac{3}{4}$ | 3 + 3 | ? | Hon. Walter Rothschild. |
| $41\frac{1}{2}$ | $7\frac{1}{2}$ | $27\frac{1}{2}$ | ... | 3 + 3 | Cent. Provinces . . | Capt. Lord Charles Bentinck. |
| $41\frac{1}{2}$ | $6\frac{1}{4}$ | $30\frac{1}{2}$ | $36\frac{1}{2}$ | 4 + 4 | Do. . . | P. Jay. |
| $41\frac{1}{2}$ | $5\frac{1}{4}$ | 22 | $24\frac{3}{4}$ | 3 + 3 | Do. . . | W. O. Gibbs. |
| $32\frac{3}{4}$ | $5\frac{1}{4}$ | 26 | $27\frac{1}{4}$ | 3 + 3 | Cochin China . . | H. R. H. the Duc d'Montpensier. |

Ceylon Specimens.

| Length on outside curve. | Circum- ference above brow-tine. | Tip to Tip. | Widest inside. | Points. | Owner. |
|-----------------------------------|---|-----------------|-------------------|---------|-------------------------|
| $32\frac{1}{2}$ | $6\frac{1}{4}$ | 24 | $26\frac{1}{4}$ | 3 + 3 | A. R. Hay. |
| $31\frac{1}{2}$ | 5 | 20 | 17 | 4 + 3 | Lieut.-Col. G. E. Hale. |
| -30 | 8? | $21\frac{1}{2}$ | $19\frac{5}{8}$ | 3 + 3 | J. Ryan. |
| 29 | $4\frac{1}{2}$ | 25 | $22\frac{1}{4}$ | 3 + 3 | Earl Cairns. |
| $27\frac{1}{4}$ | $4\frac{1}{4}$ | $16\frac{3}{4}$ | 20 | 3 + 3 | A. M. Naylor. |

- Owner's measurements.



Frontlet and Antlers of Malay Sambar.
Drawn from a Burmese specimen in the British Museum.

B.—MALAY SAMBAR (*C. unicolor equinus*).

This local race is nearly as large as the Indian sambar, but the antlers are generally shorter and thicker, with the hind or inner tine of the terminal fork much shorter than the front one, and arising as a spur from the inner hind margin of the beam, of which the front tine forms the direct continuation; the brow-tine is also generally longer. General colour of coat of adult darker, usually a light ring round the eyes, the ears smaller, often with a white margin, and the tail very bushy. Young spotted. The distributional area extends from Assam and Cachar through Burma and the Malay Peninsula to Siam, Hainan, Borneo, and perhaps Sumatra.

| Length on out- side curve. | Circum- ference. | Tip to Tip. | Widest inside. | Points. | Locality. | Owner. |
|-------------------------------------|---------------------|------------------|-------------------|---------|----------------|-------------------------------|
| 34 $\frac{3}{4}$ | 8 $\frac{3}{4}$ | 20 $\frac{1}{4}$ | 25 $\frac{3}{4}$ | 3+3 | Upper Burma . | A. L. Bacon. |
| 32 $\frac{1}{2}$ | 7 $\frac{1}{2}$ | 24 $\frac{3}{8}$ | 27 $\frac{1}{4}$ | 3+2 | Burma . . . | Major-Gen. O. E. P. Lloyd. |
| 32 | 5 | 32 $\frac{1}{2}$ | 33 $\frac{1}{2}$ | 3+3 | Cochin China . | H.R.H. the Duc d'Montpensier. |
| 32 | 7 $\frac{1}{4}$ | 20 $\frac{3}{4}$ | 23 $\frac{3}{4}$ | ... | Upper Burma . | H. L. P. Walsh. |
| 31 $\frac{1}{2}$ | 6 | 24 $\frac{3}{4}$ | 26 | 3+3 | Do. . . | B. Lentaine. |
| 31 | 6 $\frac{3}{8}$ | 14 $\frac{1}{4}$ | 18 $\frac{1}{4}$ | 3+3 | ? | G. Monteath. |
| 30 $\frac{7}{8}$ | 6 $\frac{1}{2}$ | 17 $\frac{1}{4}$ | 19 $\frac{5}{8}$ | 7+7 | Borneo . . . | Sir Edmund G. Loder, Bart. |
| 30 $\frac{1}{2}$ | 5 $\frac{1}{8}$ | 27 $\frac{3}{4}$ | ¹ 30 | 3+3 | Burma . . . | Lieut.-Col. G. H. Evans. |
| 30 $\frac{1}{4}$ | ... | 25 | 21 | 3+3 | Mogon, Burma . | H. A. Kelso. |
| 30 $\frac{1}{8}$ | 4 $\frac{3}{8}$ | 20 $\frac{3}{4}$ | 21 $\frac{1}{4}$ | 3+3 | Burma . . . | British Museum. |
| 29 $\frac{1}{2}$ | 5 $\frac{1}{8}$ | 20 $\frac{1}{2}$ | 22 $\frac{1}{2}$ | 3+3 | Do. . . | Capt. T. A. Headlam. |
| 27 $\frac{1}{2}$ | 4 $\frac{1}{2}$ | 24 $\frac{1}{2}$ | 20 $\frac{1}{2}$ | 3+3 | Do. . . | A. E. English. |

¹ Outside.**C.—FORMOSAN SAMBAR (*C. unicolor swinhoei*).**

This race is very closely related to the preceding, from which it is distinguished by its shorter head, concave profile, longer limbs, and certain differences in colour; the lower part of the legs being brownish or whitish yellow, and the bushy tail black all round. It is confined to the island of Formosa.

| Length on out- side curve. | Circum- ference. | Tip to Tip. | Points. | Owner. |
|-------------------------------------|---------------------|------------------|---------|----------------------------|
| 19 $\frac{1}{4}$ | ... | 9 | 3+3 | British Museum. |
| 17 | 4 $\frac{1}{4}$ | ... | 5 | Duke of Bedford. |
| 17 | 4 | 10 $\frac{1}{2}$ | 3+3 | Sir Edmund G. Loder, Bart. |
| 16 $\frac{1}{8}$ | 3 $\frac{5}{8}$ | 16 | 3+3 | British Museum. |

D.—LUZON SAMBAR (*C. unicolor philippinus*).

Nearly allied to the two last, the height at the shoulder being probably from 33 to 35 inches, the build stout and massive, with the hind-quarters specially elevated, and the form that of a small Malay

- Owner's measurements.

sambar. On the head is a blackish streak starting from over each eye to form a line down the middle of the face separated by a band of pale fawn from a moustache-like dark mark on the muzzle.

Distribution.—The island of Luzon, in the Philippines ; introduced into the Marianne Islands, specimens from which have been described as a separate species under the name of *C. mariannus*.

| Length on outside curve. | Circum- ference. | Tip to Tip. | Points. | Locality. | Owner. |
|-----------------------------------|---------------------|------------------|---------|-------------|----------------------------|
| 21 | 4 $\frac{3}{4}$ | 5 $\frac{1}{2}$ | 3+3 | Luzon . . . | Sir Edmund G. Loder, Bart. |
| 19 $\frac{5}{8}$ | 5 $\frac{1}{4}$ | 7 $\frac{1}{2}$ | 4+4 | Do. . . . | British Museum. |
| 18 $\frac{3}{8}$ | 5 $\frac{1}{8}$ | 14 $\frac{3}{4}$ | 4+3 | Do. . . . | Do. |

E.—BASILAN SAMBAR (*C. unicolor nigricans*).

Smaller than the last, the height at the shoulder in a mounted specimen in the British Museum being 27 inches. Detached antlers indicate, however, larger animals.

| Length on outside curve. | Circum- ference. | Tip to Tip. | Points. | Locality. | Owner. |
|-----------------------------------|---------------------|------------------|---------|--------------------|---------------------------------|
| 13 $\frac{1}{2}$ | 4 $\frac{3}{8}$ | 12 $\frac{1}{8}$ | 3+3 | Basilan Island . . | British Museum (A. H. Everett). |
| 13 $\frac{1}{8}$ | 4 $\frac{1}{8}$ | 11 $\frac{5}{8}$ | 3+3 | Do. . . . | Do. |

F.—SZE-CHUEN SAMBAR (*C. unicolor dejeani*).

A large race from North-western China, with very massive antlers, which show a tendency to develop small supplemental snags.

| Length on outside curve. | Circum- ference. | Tip to Tip. | Widest inside. | Points. | Locality. | Owner. |
|-----------------------------------|---------------------|------------------|-------------------|---------|------------------|-------------------------|
| 31 | 6 | 22 | 24 $\frac{1}{2}$ | 3+3 | N.W. China . . . | Hon. Walter Rothschild. |
| 30 $\frac{3}{8}$ | 5 $\frac{1}{2}$ | 15 $\frac{3}{8}$ | 18 $\frac{1}{2}$ | 3+3 | Sze-chuen . . . | Paris Museum (type). |



Antlers of Javan Rusa.

From a specimen in the collection of Sir Edmund G. Loder, Bart.

The RUSA DEER (*Cervus* [*Rusa*] *hippelaphus*).

General form, coat, and colour sambar-like ; but the ears smaller, the tail thin, the hairs on the back banded with coloured rings, and the under-parts, chin, and inner sides of buttocks whitish. Antlers comparatively slender and only moderately rough, with the brow-tine medium or short, and making a large acute angle with the beam ; the hind or inner tine of the terminal fork much longer than the front or outer one, and forming the continuation of the beam, from the front or front outer surface of which the brow-tine arises as an offshoot ; the two antlers enclosing a lyrate space. Young, uniformly coloured. There are two races of this species—one the Javan rusa (*C. hippelaphus typicus*) of the approximate size of a red deer, and the other the Moluccan rusa (*C. hippelaphus moluccensis*), from Celebes and

the Moluccas, said to be smaller, and without a distinct mane on the neck or tuft to the tail.

A.—JAVAN RUSA (C. hippelaphus typicus).

| Length on outside curve. | Circum- ference. | Tip to Tip. | Widest inside. | Points. | Locality. | Owner. |
|-----------------------------------|---------------------|----------------|-------------------|---------|------------------------|---|
| 37½ | 5¾ | 16 | 17¾ | 3+3 | Java . . . | His Majesty the King. |
| 37½ | 5 | 16¾ | 19¾ | 3+3 | Do. . . . | British Museum. |
| 36 | ... | 11½ | ... | 3+3 | Mauritius (introduced) | Admiral Sir William Kennedy. |
| 35½ | 4¾ | 22¾ | ... | 3+3 | Java . . . | Sir Victor Brooke's Collection. |
| 35½ | 4½ | 17½ | 17 | 3+3 | Do. . . . | Hon. Walter Rothschild. |
| 34½ | 4¾ | 17½ | 22½ | 3+3 | Do. . . . | Rear-Admiral Sir Colin R. Keppel, R.N. |
| 34 | 5 | 14 | 16½ | 3+3 | Do. . . . | J. C. Phillips. |
| 34 | ... | ... | ... | ... | Rodriguez (introduced) | Admiral Sir William Kennedy. |
| 33½ | 5 | 12 | ... | 3+3 | Java . . . | Sir Edmund G. Loder, Bart. |
| 33 | 4½ | 25½ | ... | 3+3 | Do. . . . | Duke of Bedford. |

- Owner's measurements.

¹ Weight 269 lbs. •

B.—MOLUCCAN RUSA (C. hippelaphus moluccensis).

| Length on outside curve. | Circum- ference. | Tip to Tip. | Points. | Locality. | Owner. |
|-----------------------------------|---------------------|----------------|---------|----------------|---------------------------------|
| 36½ | 4½ | 18½ | 3+3 | ? | Sir Edmund G. Loder, Bart. |
| 27½ | 4¾ | 14½ | 3+3 | ? | Duke of Bedford. |
| 8¾ | 4 | 5½ | ... | Batchian . . . | British Museum (A. R. Wallace). |



Head of Chital.

The CHITAL or AXIS DEER (*Cervus axis*).

This beautiful species is distinguished from all the other members of the rusa-like deer, except the Philippine spotted deer (*C. alfredi*), by the body being profusely spotted with white at all seasons and all ages; the general colour of the upper-parts being light rufous fawn, with a dark stripe from the nape to the tip of the tail and a black band on the muzzle. Height at shoulder from 36 to 38 inches; live-weight estimated at about 200 lbs. Antlers supported on short pedicles, long, slender, and moderately rough; the brow-tine making nearly a right angle with the beam, and the front tine of the terminal fork, which forms the continuation of the beam, much the longer.

Distribution.—India and Ceylon.

The Ceylon chital (*C. axis zeylanicus*) has relatively small and light antlers, and also differs somewhat in coloration from the large typical race of Central India. There is also a small continental form (*C. axis minor*).

| Length on outside curve. | Circumfer- ence above the first point. | Tip to Tip. | Points. | Locality. | Owner. |
|--------------------------------|---|------------------|---------|---------------------------------------|---------------------------------|
| 39 | 4 $\frac{5}{8}$ | 24 $\frac{5}{8}$ | 4+3 | United Provinces | Lady Eileen Elliott. |
| 39 | 4 $\frac{1}{4}$ | 15 $\frac{1}{4}$ | 4+5 | Jubbulpore | Capt. F. Pope. |
| 38 $\frac{1}{2}$ | 4 | 25 | 5+5 | Mandla | Hon. Walter Rothschild. |
| 38 $\frac{1}{4}$ | 4 $\frac{1}{4}$ | 19 $\frac{1}{2}$ | 3+3 | Asirgarh Jungle, Central Provinces | Lient.-Col. M. Cust. |
| 38 | 4 $\frac{3}{4}$ | 18 | 3+3 | East Berar | Brig.-Gen. F. H. Whitby. |
| 38 | 4 $\frac{1}{4}$ | 20 | 4+4 | Do. | Col. H. D'U. Keary. |
| 38 | 4 $\frac{1}{2}$ | 22 | 4+4 | ? | Col. A. Pollock. |
| 37 $\frac{1}{2}$ | 3 $\frac{3}{4}$ | 19 | 3+3 | Siwalik Hills | Capt. B. R. M. Glossop. |
| 37 $\frac{1}{2}$ | 4 $\frac{1}{4}$ | 24 $\frac{3}{8}$ | 4+4 | Bassim, C.P. | A. O. Hume. |
| 37 $\frac{1}{4}$ | ... | 34 | 3+3 | Siwaliks | Major D. H. Drake-Brockmann. |
| 37 $\frac{1}{4}$ | 4 $\frac{1}{4}$ | 16 $\frac{7}{8}$ | 4+5 | ? | Sir Victor Brooke's Collection. |
| 36 $\frac{3}{4}$ | 4 | 20 $\frac{3}{4}$ | 4+4 | Central Provinces | J. A. McKee. |
| 36 $\frac{1}{2}$ | 4 $\frac{1}{2}$ | 25 | 4+3 | Berar | C. H. Seely. |
| 36 | 4 $\frac{1}{4}$ | 25 $\frac{1}{4}$ | 3+4 | | British Museum. |
| 36 | 4 $\frac{1}{2}$ | 21 | 4+3 | | Major James Grant. |
| 35 $\frac{7}{8}$ | 3 $\frac{1}{2}$ | 19 $\frac{1}{2}$ | 3+3 | Nepal | Dr. Albert von Stephani. |
| 35 $\frac{3}{4}$ | 4 | 19 $\frac{3}{4}$ | 3+3 | Central Provinces | Major G. T. M. Bridges. |
| 35 $\frac{1}{2}$ | 4 $\frac{1}{4}$ | 18 $\frac{1}{8}$ | 4+4 | ? | Sir Edmund G. Loder, Bart. |
| 35 $\frac{1}{2}$ | 3 $\frac{3}{4}$ | 23 | 3+3 | ? | Mrs. Macan. |
| 35 $\frac{1}{2}$ | 4 | 12 $\frac{1}{4}$ | 5+5 | ? | G. W. Hatch. |
| 35 $\frac{1}{2}$ | 4 | 32 $\frac{1}{2}$ | 3+3 | ? | Capt. R. Tudor Owen. |
| 34 $\frac{1}{4}$ | 4 | 14 $\frac{3}{4}$ | 3+3 | Berar | F. L. Crawford. |
| 34 $\frac{1}{2}$ | 4 $\frac{3}{8}$ | 19 $\frac{1}{4}$ | 3+3 | Ceylon | F. J. S. Turner. |
| 33 $\frac{3}{4}$ | 3 $\frac{3}{4}$ | 25 $\frac{1}{4}$ | 4+4 | Central Provinces | F. W. Parrish. |
| 32 | 3 $\frac{1}{4}$ | 19 $\frac{1}{2}$ | 3+3 | Ceylon | W. J. Smith. |
| 31 $\frac{3}{4}$ | 4 | 13 | 3+3 | Do. | M. J. Alderson. |
| 31 $\frac{1}{2}$ | 3 $\frac{3}{4}$ | 17 $\frac{1}{2}$ | 3+3 | Do. | Count Scheibler. |
| 31 $\frac{1}{2}$ | 3 | 10 $\frac{1}{2}$ | 3+3 | Do. | A. R. Hay. |
| 30 $\frac{1}{2}$ | 3 $\frac{1}{2}$ | 10 $\frac{1}{4}$ | 3+3 | Do. | Major F. H. N. Pym. |
| 30 $\frac{1}{4}$ | | | | Do. | H. Storey. |

- Owner's measurements.



Head of Hog-Deer.

The HOG-DEER or PARA (*Cervus* [*Hyelaphus*] *porcinus*).

In the group typified by the hog-deer the antler-pedicles are long, the bulla of the skull is large, and the pit for the face-gland much less deep than in the sambar group, while the nasal bones are not expanded superiorly, and the tail is shorter. In the Philippines the group (*Hyelaphus*) is represented by the Philippine hog-deer *C. calamienensis*, and by the species named *C. culionensis*. The Indian hog-deer is not dissimilar to the Bavian deer, but the antlers are larger, the build longer and lower, and the summer coat of the adult, as well as that of the young, spotted with yellowish white. General colour in winter rufous or yellowish brown, somewhat speckled above, and much darker beneath; in summer, upper-parts paler and more or less spotted. Antlers on long pedicles, with the hind tine of the terminal fork the shorter. Height at shoulder from about 25 to 29 inches. Weight about 90 to 100 lbs. A pair of antlers belonging to a specimen shot by Mr. A. O. Hume in the Ganges Khadir, near Meerut, measured 20 inches along the beam inside, and had a mid-beam girth of 3.5 inches.

Distribution.—India, throughout the Indo-Gangetic plain from Sind and the Punjab to Assam, thence through Sylhet to Burma, Tenasserim, and Siam. The Siamese race (*C. p. hecki*) differs from the typical hog-deer by its superior size and the absence of spots.

| Length on outside curve. | Circumference above brow-line. | Tip to Tip. | Locality. | Owner. |
|--------------------------|--------------------------------|------------------|----------------------------------|-------------------------------------|
| -23 $\frac{1}{4}$ | 3 $\frac{7}{8}$ | 12 $\frac{7}{8}$ | Burma | Lieut.-Col. G. H. Evans. |
| 21 $\frac{5}{8}$ | 3 $\frac{1}{4}$ | 6 $\frac{5}{8}$ | Do. | British Museum. |
| -21 $\frac{1}{4}$ | 3 $\frac{3}{4}$ | 22 $\frac{1}{2}$ | ? | Sir Edmund G. Loder, Bart. |
| -21 | 3 $\frac{1}{4}$ | 15 $\frac{1}{4}$ | Pegu | Major-Gen. E. M. Norie. |
| 20 $\frac{3}{8}$ | 3 $\frac{1}{2}$ | 22 $\frac{1}{2}$ | ? | Major W. Anstruther Gray. |
| -20 $\frac{3}{8}$ | 3 $\frac{1}{8}$ | ... | Nepal | Bombay Natural History Society. |
| -20 $\frac{1}{4}$ | 4 $\frac{1}{2}$ | 17 $\frac{1}{4}$ | ? | J. Whitaker. |
| -20 $\frac{1}{8}$ | 3 | 9 $\frac{1}{2}$ | United Provinces . | J. Nugent. |
| -20 | .. | .. | Burma | Indian Museum (Capt. R. C. Beavan). |
| 19 $\frac{5}{8}$ | 3 $\frac{1}{8}$ | 16 | Meerut | Major W. Q. Winwood. |
| 19 $\frac{1}{2}$ | 3 $\frac{1}{8}$ | 13 $\frac{5}{8}$ | Dudla Swamp, United Provinces | Major W. E. Stobart. |
| -19 $\frac{1}{2}$ | 3 $\frac{3}{8}$ | ... | Nepal | Bombay Natural History Society. |
| 19 $\frac{1}{2}$ | 3 $\frac{1}{4}$ | 16 | ? | Col. A. Short. |
| 19 $\frac{1}{4}$ | 3 $\frac{1}{8}$ | 9 $\frac{1}{2}$ | Ganges Khadir . . | A. O. Hume. |
| 19 $\frac{1}{8}$ | 3 $\frac{1}{4}$ | 16 $\frac{1}{2}$ | Burma | Sir Victor Brooke's Collection. |
| 19 $\frac{1}{8}$ | 3 $\frac{3}{8}$ | 18 $\frac{3}{4}$ | ? | H. C. V. Hunter. |
| 19 | 3 $\frac{1}{2}$ | 18 | Upper Burma . . | Sir Edmund G. Loder, Bart. |
| ¹ -18 | 6 $\frac{1}{2}$ | 19 | Ganges Khadir . . | Lieut.-Gen. Sir R. Pole-Carew. |

- Owner's measurements.

¹ Ten points.

The BAVIAN DEER (*Cervus* [*Hyelaphus*] *kuhli*).

A small deer allied to the hog-deer, standing about 27 inches at the shoulder, of light build, and of a uniform brown colour, without a dark stripe down the back.

Distribution.—The Bavian Islands, between Borneo and Java.

| Length on outside curve. | Circumference. | Tip to Tip. | Widest inside. | Points. | Owner. |
|--------------------------|-----------------|------------------|------------------|---------|-----------------|
| 9 $\frac{3}{4}$ | 2 $\frac{1}{4}$ | 10 $\frac{1}{4}$ | 10 $\frac{1}{4}$ | 3+3 | British Museum. |



Head of Barasingha.

The **BARASINGHA** or **SWAMP-DEER** (*Cervus* [*Rucervus*] *duvauceli*).

This species belongs to the rucervine group, in which the antlers resemble those of the rusine and allied sections in the absence of the bez and trez tines, but have the beam regularly forked, and each branch again dividing, so that there are at least four tines. There is

no gland on the hind-leg, or only a vestige thereof. In the swamp-deer the antlers are smooth and flattened, with a long brow-tine rising almost at right angles to the beam, which is undivided for about half the total length of the antler, and then splits into a fork, each branch



Head of Barasingha, from the Central Provinces, with antlers approximating to the Thamin type.

From the Proceedings of the Zoological Society for 1899.

being usually simply forked, but sometimes divided in a more complicated manner. General colour bright rufous brown, often speckled near the back. Height at shoulder from 3 feet 8 inches to 3 feet 10 inches; weight about 400 lbs.

Distribution.—India, exclusive of Ceylon.

| Length on outside curve. | Circum- ference. | Tip to Tip. | Widest inside. | Points. | Locality. | Owner. |
|-----------------------------------|---------------------|------------------------|-------------------|---------|-------------------|---------------------------------|
| 41 | 6 $\frac{1}{2}$ | 35 $\frac{1}{2}$ | 38 | 8+5 | Central Provinces | Capt. W. W. Hancock. |
| 41 | 5 $\frac{1}{4}$ | 32 | 37 $\frac{1}{4}$ | 8+7 | Do. | Col. C. B. Wood. |
| 41 | 5 $\frac{1}{2}$ | (one antler broken) | | 6+6 | Do. | Major C. S. Cumberland. |
| 39 $\frac{1}{4}$ | 5 | 35 $\frac{1}{2}$ | 37 $\frac{1}{2}$ | 5+6 | Do. | Do. |
| 38 $\frac{1}{4}$ | 5 $\frac{1}{2}$ | (shed antlers) | | 6+5 | Do. | C. F. Egerton. |
| 38 | 4 $\frac{1}{4}$ | 28 $\frac{5}{8}$ | 33 $\frac{1}{2}$ | 6+6 | Do. | J. A. McKee. |
| -38 | ... | 43 | ... | 6+6 | Do. | J. D. Inverarity. |
| 37 $\frac{3}{8}$ | 5 $\frac{1}{4}$ | 23 $\frac{5}{8}$ | 28 $\frac{1}{2}$ | 7+6 | ? | Sir Edmund G. Loder, Bart. |
| 36 $\frac{3}{4}$ | 6 | 27 $\frac{1}{2}$ | ... | 8+6 | ? | Major Lord Charles Fitzmaurice. |
| 36 $\frac{1}{4}$ | 4 $\frac{1}{2}$ | 32 | 20 $\frac{1}{4}$ | 5+5 | ? | Mrs. Macan. |
| 36 | 5 | 29 $\frac{1}{4}$ | 33 $\frac{3}{8}$ | 6+5 | Nepal | British Museum (B. H. Hodgson). |
| 36 | 4 $\frac{1}{2}$ | 47 | 47 | 6+6 | Central Provinces | Col. C. B. Wood. |
| -36 | ... | 29 | ... | 6+6 | Nepal | J. D. Inverarity. |
| -36 | 5 $\frac{1}{4}$ | 32 $\frac{1}{2}$ | ... | 7+7 | ? | Major W. Anstruther Gray. |
| -35 $\frac{1}{2}$ | 6 | 29 $\frac{1}{2}$ | ... | 7+6 | Kheri District | Major A. Wilson. |
| 35 $\frac{3}{8}$ | 4 $\frac{3}{8}$ | 27 | 29 $\frac{5}{4}$ | ... | ? | Sir Victor Brooke's Collection. |
| 35 $\frac{1}{4}$ | 4 $\frac{1}{2}$ | 29 $\frac{1}{2}$ | 32 $\frac{3}{4}$ | 6+5 | ? | H. J. D. Broughton. |
| 35 $\frac{1}{4}$ | 5 $\frac{3}{4}$ | 22 $\frac{1}{4}$ | ... | 7+6 | Nepal | H. C. V. Hunter. |
| 35 | 4 $\frac{3}{4}$ | 27 $\frac{1}{2}$ | 30 $\frac{1}{2}$ | 5+5 | Terai | Major E. B. Cook. |
| 35 | 5 $\frac{1}{2}$ | 31 $\frac{1}{2}$ | 34 $\frac{1}{4}$ | 8+6 | Central Provinces | Major R. Baker-Carr. |
| 35 | 5 | 29 $\frac{1}{4}$ | 32 $\frac{1}{2}$ | 6+6 | Do. | British Museum. |
| 34 | 4 $\frac{1}{2}$ | 22 $\frac{1}{2}$ | 25 $\frac{3}{4}$ | 8+7 | ? | S. F. A. Hurt. |
| 33 | 5 | 30 | 30 $\frac{3}{4}$ | 4+4 | ? | G. P. Cozens. |

- Owner's measurements.



Skull and Antlers of Schomburgk's Deer. From a specimen in the British Museum, presented by Rowland Ward.

SCHOMBURGK'S DEER (*Cervus* [*Rucervus*] *schomburgki*).

La-ong or *La-on*, Siamese.

Allied to the preceding, but the antlers smooth, rounded, and more complex; the brow-tine very long, frequently forked, and arising nearly at right angles to the beam, which is very short, compressed, and regularly forked, with each of the main branches about equally developed and again forking in a similar manner to terminate in long cylindrical tines. General colour, uniform dark brown. Height at shoulder about 3 feet 5 inches.

Distribution.—Siamese territory east and west of the Menam River; also Cambodia west of the Menam River south of Paknampho, and in swamps occasionally on the east; in fact, chiefly the inland districts east of the Menam River in Northern Siam.

| Length on outside curve. | Circum- ference. | Tip to Tip. | Widest inside. | Points. | Owner. |
|-----------------------------------|---------------------|------------------|-------------------|---------|---------------------------------|
| 33 | 5 $\frac{3}{4}$ | 17 $\frac{1}{4}$ | 31 $\frac{1}{2}$ | 11 + 9 | British Museum (Rowland Ward). |
| 32 $\frac{1}{8}$ | 5 $\frac{1}{8}$ | . | ... | 12 + 11 | Sir Edmund G. Loder, Bart. |
| 30 $\frac{1}{2}$ | ... | . | .. | 10 + 12 | American National Collection. |
| 30 $\frac{1}{8}$ | 5 | 15 $\frac{5}{8}$ | 33 | 10 + 10 | British Museum. |
| 29 $\frac{1}{4}$ | 4 $\frac{5}{8}$ | 28 $\frac{3}{8}$ | 31 $\frac{5}{8}$ | 10 + 11 | Do. |
| 29 $\frac{1}{2}$ | 6 | 19 $\frac{1}{2}$ | 27 | 6 + 7 | J. Carr Saunders. |
| 28 $\frac{1}{2}$ | 5 $\frac{1}{4}$ | 11 | 29 $\frac{3}{8}$ | 11 + 9 | Sir Victor Brooke's Collection. |
| 28.5 | 5.25 | 9.5 | 28.5 | 10 + 9 | Indian Museum. |
| 27 $\frac{1}{2}$ | 5 $\frac{3}{4}$ | 20 | 27 $\frac{3}{4}$ | 10 + 9 | J. W. Ford. |
| 20 $\frac{1}{4}$ | 4 | 17 $\frac{1}{4}$ | 20 | 6 + 6 | Hon. Walter Rothschild. |

- Owner's measurements.



Skull and Antlers of Thamin. From a Burmese specimen.

The THAMIN or ELD'S DEER (*Cervus* [*Rucervus*] *eldi*).

Although belonging to the same group as the two preceding species, this deer is readily distinguished by the peculiar form of the antlers. These are rounded and rough, with a long curved brow-tine, forming a continuation of the curve of the beam, which is set at right angles to the pedicle; the beam unbranched for some distance, much curved, and finally forked, with the outer prong more subdivided than the inner. Height at shoulder about 4 feet 3 inches; weight from 210 lbs. to 245 lbs. There are three races of this species. First, the Burmese thamin (*C. eldi typicus*), ranging from near Manipur through Burma to the Malay Peninsula, in which the antlers are rounded throughout, and the coat is uniformly umber-brown. Secondly, the Manipur thamin (*C. eldi cornipes*), in which the under-surface of the fetlock is horny instead of hairy. Thirdly, the Siamese thamin (*C. eldi platyceros*), from Siam and Hainan, in which the tips of the antlers are flattened with a number of small snags, and the coat is redder, with yellowish spots. Swamp-deer from the Central Provinces show a remarkable approximation in the form of their antlers to the present species, as shown in the figure on page 73.

| Length on outside curve, not including brow-tine. | Circum- ference. | Tip to Tip. | Widest inside. | Points. | Locality. | Owner. |
|---|---------------------|------------------|-------------------|---------|-------------------------|----------------------------|
| 42 | 5 | 29 | 24 | 3 + 2 | Burma . . | A. H. Collins. |
| -41 | 5 $\frac{1}{4}$ | 30 | 36 | 5 + 7 | Do. . . | Lieut.-Col. G. H. Evans. |
| 41 | 5 $\frac{1}{2}$ | 27 $\frac{5}{8}$ | 36 | 5 + 5 | Upper Burma . | Maj.-Gen. O. E. P. Lloyd. |
| 40 $\frac{1}{2}$ | 5 | 25 $\frac{1}{2}$ | 34 $\frac{1}{2}$ | 7 + 6 | Do. . . | A. B. Roberts. |
| 40 $\frac{1}{4}$ | 5 | 30 $\frac{1}{4}$ | 36 $\frac{3}{4}$ | 6 + 5 | ? | C. B. Smales. |
| 40 | 5 $\frac{1}{4}$ | 21 $\frac{3}{4}$ | 28 | 5 + 5 | Upper Burma . | Col. H. D'U. Keary. |
| 40 | 5 $\frac{1}{2}$ | 21 | 32 $\frac{1}{4}$ | 6 + 5 | Do. . . | Col. H. Appleton. |
| -39 $\frac{3}{4}$ | 5 | 25 $\frac{1}{2}$ | 35 $\frac{1}{2}$ | 7 + 6 | Do. . . | S. E. F. Jenkins. |
| 39 $\frac{5}{8}$ | 5 | 20 $\frac{1}{4}$ | 30 $\frac{1}{2}$ | 6 + 6 | Burma . . | Col. J. W. A. Morgan. |
| ¹ 39 $\frac{5}{8}$ | 5 | 31 $\frac{3}{4}$ | 36 $\frac{5}{8}$ | 20 | Siam . . | Sir Edmund G. Loder, Bart. |
| 39 $\frac{1}{2}$ | 5 | 29 $\frac{3}{4}$ | 37 | 12 | Burma . . | Major E. W. M. Purvis. |
| 39 $\frac{1}{2}$ | ... | 21 $\frac{1}{2}$ | 33 | ... | Do. . . | Lieut.-Col. H. de H. Haig. |
| -39 | 7 $\frac{1}{2}$ | 22 $\frac{1}{2}$ | 29 | 10 + 10 | Manipur . . | Major H. S. Wood. |
| -39 | 5 | 41 | . | 5 + 5 | Lower Burma . | W. O. Hannington. |
| 38 $\frac{7}{8}$ | 6 $\frac{1}{4}$ | 25 $\frac{1}{2}$ | 30 $\frac{3}{8}$ | 16 + 19 | ? | British Museum. |
| 38 $\frac{1}{4}$ | 6 $\frac{1}{4}$ | 24 | 30 $\frac{1}{4}$ | 6 + 5 | Manipur . . | A. O. Hume. |
| 38 | 4 $\frac{5}{8}$ | 29 $\frac{1}{4}$ | 36 $\frac{3}{4}$ | 5 + 5 | Pegu . . | G. R. Radmore. |
| 38 | 4 $\frac{1}{2}$ | 20 $\frac{1}{2}$ | 32 | 5 + 4 | Burma . . | H. F. Hall. |
| 37 | 5 | 23 $\frac{3}{4}$ | 31 $\frac{1}{2}$ | 4 + 4 | Do. . . | Major C. S. Cumberland. |
| 37 | 6 | ... | 37 $\frac{1}{4}$ | ... | Do. . . | Capt. J. A. F. Field. |
| 36 $\frac{3}{4}$ | 4 $\frac{3}{4}$ | 16 | 27 | 4 + 4 | Do. . . | L. E. Hopkins. |
| 36 $\frac{3}{4}$ | 4 $\frac{3}{4}$ | 22 | 27 | 7 + 5 | Do. . . | M. E. Lloyd. |
| 36 $\frac{1}{2}$ | 4 $\frac{1}{2}$ | 22 $\frac{5}{8}$ | 29 $\frac{1}{2}$ | 5 + 4 | Do. . . | H. Twyford. |
| 36 | 4 $\frac{1}{2}$ | 23 | 31 | 10 + 9 | Do. . . | Capt. H. W. Marsden. |
| 36 | 4 $\frac{3}{4}$ | 29 $\frac{1}{4}$ | 31 $\frac{1}{4}$ | 4 + 3 | Manipur . . | L. P. Haviland. |
| 36 | 5 | ... | ... | 4 + 4 | ? | Duke of Bedford. |
| 36 | 4 $\frac{1}{2}$ | 25 | 33 $\frac{1}{4}$ | 7 + 5 | ? | L. G. Nunes. |
| 36 | 5 | 31 $\frac{3}{4}$ | 37 | 6 + 4 | Burma . . | Sir Robert Harvey, Bart. |
| 35 $\frac{1}{2}$ | 4 $\frac{1}{2}$ | 22 $\frac{1}{4}$ | 31 $\frac{1}{4}$ | 6 + 6 | Kyaikto, Lower Burma | J. W. Clough. |
| 35 | 4 $\frac{1}{2}$ | 23 | 30 | 5 + 4 | Upper Burma . | W. A. Conduitt. |
| 34 $\frac{1}{8}$ | 5 | 24 | 32 $\frac{1}{4}$ | 6 + 6 | Burma . . | Hon. Walter Rothschild. |

- Owner's measurements.

¹ Measured on front of antler from highest tip to tip of frontal tine 56 $\frac{1}{2}$ inches.

| Extreme length of right antler round the out- side curve, high- est point, to tip of brow-tine. | Circum- ference. | Tip to Tip. | Widest span. | Number of Points. | Locality. | Owner. |
|--|---------------------|----------------|-----------------|----------------------|-----------|--------------------------|
| 56½ | 5½ | 28 | 37 | 13 | Burma . . | W. F. Loftus-Tottenham. |
| 55½ | 4½ | 34½ | 42½ | 12 | Do. . . | Do. |
| 55 | 7 | 28½ | 38½ | 12 | Do. . . | Lieut.-Col. G. H. Evans. |
| 55 | 5½ | 30 | 37 | 15 | Do. . . | Do. |
| 55 | 5 | ... | 42 | 13 | Do. . . | Do. |

— Owner's measurements.



Skull and Antlers of Indian Muntjac.

The MUNTJAC or BARKING DEER (*Cervulus muntjac*).

This species is the typical representative of a genus of small Indo-Malay deer differing widely from all those included in *Cervus*. The antlers, which do not usually exceed half the length of the head, have a short brow-tine and an unbranched beam, and are supported on long skin-covered pedicles, continued downwards as convergent ridges on the forehead, whence the name of rib-faced deer. Tufts of bristly hair occupy the position of the antlers in the females. The muzzle has a large naked portion, and although there is generally a pair of glands on the face, there are none either on the hock or the cannon-bone. The young may be spotted, but the adults are uniformly coloured. The range of the typical muntjac, which is one of the reddish-coloured species, extends from Ceylon and India through Burma to China, the Malay Peninsula, Sumatra, and Java. Reeves' muntjac (*C. reevesi*), from China and Formosa, a smaller species, is also reddish, as is Sclater's muntjac (*C. sclateri*) of Central China, and the Tibetan *C. lachrymans*; *C. bridgemani*, of Central China, is darker; in the Tenasserim muntjac (*C. feæ*), and the larger hairy-fronted muntjac (*C. crinifrons*) of Eastern China the general hue is dark purplish sepia-brown, with white on the buttocks and under surface of the tail. The average height of the male of the typical species at the shoulder is from 20 to 22 inches, and the weight about 38 lbs.; a female stands about 20 inches and weighs about 32 lbs.

Several local races of the ordinary muntjac doubtless exist. The typical form (*C. muntjac typicus*) is the Javan animal; the Burmese race has been distinguished as *C. muntjac grandicornis*, while the Indian

form is known as *C. m. tamulicus*, and the Siamese as *C. m. curvostylis*. The antlers of the Burmese race are large and massive. The earlier name *Muntjacus* is often used in place of *Cervulus*.

| Length on outside curve of antler from burr to tip. | Circumference above burr. | Tip to Tip. | Locality. | Owner. |
|---|---------------------------|----------------|------------------------|---------------------------------|
| $-10\frac{3}{8}$ | ... | ... | Java . . . | H. Van Son. |
| $1-9\frac{1}{2}$ | $4\frac{1}{2}$ | 5 | Singapore . . . | Sir Edmund G. Loder, Bart. |
| $-8\frac{5}{8}$ | $3\frac{3}{4}$ | $6\frac{1}{4}$ | Java . . . | Dr. Albert von Stephani. |
| $-8\frac{3}{8}$ | $4\frac{1}{4}$ | $4\frac{5}{8}$ | India . . . | W. H. Wilson. |
| $17\frac{5}{8}$ | $4\frac{1}{2}$ | $3\frac{1}{2}$ | Lombok . . . | Hon. Walter Rothschild. |
| $7\frac{5}{8}$ | $2\frac{1}{4}$ | $1\frac{3}{4}$ | U. Burma . . . | L. H. Baker. |
| $27\frac{1}{4}$ | $3\frac{1}{4}$ | $3\frac{7}{8}$ | Lombok . . . | Hon. Walter Rothschild. |
| 7 | $3\frac{7}{8}$ | $4\frac{1}{4}$ | Burma . . . | Col. H. D'U. Keary. |
| $-6\frac{3}{4}$ | $2\frac{3}{4}$ | $2\frac{1}{2}$ | Perak . . . | Perak Museum. |
| $6\frac{3}{4}$ | $2\frac{1}{4}$ | 3 | Ranikhet . . . | Lieut.-Col. B. W. C. Deeble. |
| $6\frac{5}{8}$ | $2\frac{1}{4}$ | $3\frac{1}{8}$ | Java . . . | J. C. Van Son. |
| $6\frac{1}{2}$ | $2\frac{5}{8}$ | $3\frac{1}{2}$ | Nepal . . . | British Museum (B. H. Hodgson). |
| $6\frac{1}{2}$ | 3 | $3\frac{7}{8}$ | ? | A. O. Hume. |
| $-6\frac{1}{2}$ | $2\frac{1}{2}$ | $3\frac{1}{8}$ | Namba Forest, Assam | Major H. S. Wood. |
| $-6\frac{1}{2}$ | $2\frac{3}{4}$ | ... | North of Mussuri . . . | Capt. Harry V. Brooke. |
| $-6\frac{1}{2}$ | $2\frac{7}{8}$ | $3\frac{1}{4}$ | Ranikhet . . . | Lieut.-Col. E. T. Taylor. |

¹ Determination provisional.

² Weight 37 lbs.

SCLATER'S MUNTJAC (*Cervulus sclateri*).

About equal in size to the last, with the upper part of the head and fore-neck bright yellow and the body browner than in *muntjac*. The lower portion of the front of the fore-legs is blackish brown. In the Tibetan *C. lachrymans* the head is orange brown, and the limbs are brownish fawn. Weight of male 38 and female 36 lbs.

Distribution.—Central China.

| Length on outside curve of longest antler. | Circumference. | Tip to Tip. | Locality. | Owner. |
|--|----------------|----------------|-------------------------|--------------------------------------|
| $5\frac{1}{8}$ | $2\frac{1}{2}$ | $3\frac{3}{8}$ | China . . . | Lieut. Hon. R. O. B. Bridgeman, R.N. |
| 5 | 2 | 3 | Anghwei, China . . . | British Museum. |
| $3\frac{3}{4}$ | 2 | $2\frac{3}{4}$ | Tungkuan Shan, C. China | Lieut. Hon. R. O. B. Bridgeman, R.N. |
| $2\frac{1}{2}$ | $1\frac{5}{8}$ | 3 | Ningpo . . . | British Museum (R. Swinhoe). |
| $-2\frac{1}{2}$ | $1\frac{1}{2}$ | $3\frac{1}{4}$ | Do. . . | Dublin Museum. |

- Owner's measurements.



Head of Hairy-fronted Muntjac.

The HAIRY-FRONTED MUNTJAC (*Cervulus crinifrons*).

| Length on out- side curve of longest antler. | Circumference. | Tip to Tip. | Locality. | Owner. |
|--|----------------|----------------|----------------|-----------------|
| $1\frac{1}{2}$ | ... | $4\frac{1}{2}$ | Ningpo | British Museum. |

REEVE'S MUNTJAC (*Cervulus reevesi*).

| Length on out- side curve of longest antler. | Circumference. | Tip to Tip. | Locality. | Owner. |
|--|----------------|----------------|-------------------|--------------------------------------|
| $2\frac{1}{2}$ | $2\frac{3}{4}$ | $3\frac{1}{4}$ | Feng Luang Shan . | Lieut. Hon. R. O. B. Bridge- man, |

BRIDGEMAN'S MUNTJAC (*Cervulus bridgemani*).

| Length on out- side curve of longest antler. | Circumference. | Tip to Tip. | Locality. | Owner. |
|--|----------------|-------------|-------------------|--------------------------------------|
| 5 | 2 | 3 | Feng Luang Shan . | Lieut. Hon. R. O. B. Bridge- man. |



Antlers of Woodland Caribou. From a specimen in the British Museum.

The REINDEER or CARIBOU (*Rangifer tarandus*).

Distinguished from all other deer by the presence of antlers in both sexes; those of males being complex, with the brow-tines palmated and often unsymmetrical, and the bez, or second tine, also generally expanded. The muzzle is hairy, the ears and tail are short, and the throat has a fringe of long hair. The coat is very thick, and typically dark cinnamon-brown in colour above, with the limbs, a flank-band, and some of the under-parts darker, the neck lighter, and more or less white in the region of the tail, on the under-parts, and fetlocks. In *R. t. montanus* the whole neck and lower surface are chocolate-brown, but in most American races there is some white in these regions, and *R. t. pearyi*, of Ellesmereland, is almost wholly white. The false or lateral hoofs are unusually large and spreading; and there is a patch of long white hair covering a gland on the hock, but none on the hind cannon-bone. Glands between main hoofs. Height at shoulder reaching to 4 feet 10 inches (Newfoundland). Hinds weigh between 224 and 280 lbs.

Reindeer inhabit the circumpolar regions of both hemispheres, in Europe including Scandinavia, Lapland, and Northern Russia; their southern limit varies from 52° to 54° N. latitude, while they extend to between 80° and 81° northwards.

Several local forms of reindeer are recognised. The more important are: (1) the Scandinavian reindeer (*R. tarandus typicus*) of Sweden and Norway, which is rather small with moderately expanded antlers; (2) the larger Finnish reindeer (*R. t. fennicus*), distinguished by the more vaulted nasal bones; (3) the woodland caribou (*R. t. caribou*) of the forest districts of Arctic America, characterised by its large size and the short,



Antlers of Woodland Caribou from Nova Scotia.
From a specimen in the British Museum.

much-palmated antlers, in which the brow-tines form huge "shovels," one generally much larger than the other; and (4) the Barren-Ground reindeer (*R. t. arcticus*), from the open country north of the forests in America, nearly related to the Scandinavian reindeer, and characterised by its small bodily size, and the great length and simple form of the antlers, in which, except on the brow-tine, there is scarcely any palmar-tion. The reindeer of Siberia and Novaia Zemlia, which approximate to the American types, have been named *R. t. sibiricus* and *R. t. pearsoni*. Names have been given to numerous American local forms, some of

which tend to connect the Barren-Ground with the woodland type. The Greenland caribou (*R. t. grænlændicus*) is of the Barren-Ground type, but all the rest are nearer the woodland form. Among these, the Newfoundland *R. t. terræ-novæ* has antlers of a very complex type ;



Side view of Antlers of Barren-Ground Caribou. From a specimen in the British Museum.

R. t. montanus and *R. t. osborni* are mountain-races, probably passing towards *R. t. stonci* and *R. t. granti* of Southern Alaska, which have somewhat longer antlers, and thus approach the Barren-Ground type, although they are large animals. Reindeer have brow-tined antlers, but otherwise appear to be related to the American deer.



Mr. Hesketh Prichard's 49-Pointer.

A.—AMERICAN SPECIMENS.

| Length on out- side curve. | Circum- ference. | Tip to Tip. | Widest inside. | Points. | Locality. | Owner. |
|-------------------------------------|---------------------|------------------|-------------------------------|---------|----------------------------|--|
| 67 $\frac{5}{8}$ | 7 | ... | 44 $\frac{1}{2}$ | 38 | Hudson's Bay | Viscount Powerscourt. |
| -1 62 | 8 $\frac{3}{8}$ | ... | 50 (outside) | 9 + 15 | Alaska . . . | American National Collection (Reed Collection). |
| 62 | 5 $\frac{1}{2}$ | 40 | 50 $\frac{1}{2}$ | 21 + 17 | Hudson's Bay | Sir Edmund G. Loder, Bart. |
| 1 60 | 7 $\frac{1}{4}$ | ... | 43 $\frac{1}{2}$ (outside) | 20 + 14 | Alaska . . . | American National Collection (Reed Collection). |
| -60 | 6 | ... | 50 $\frac{1}{2}$ | 43 | Kenai Peninsula, Alaska | W. H. Case. |
| -2 60 | ... | ... | 34 (G. S.) | ... | North Labrador | United States National Museum, Washington |
| 59 | 6 $\frac{1}{4}$ | 29 $\frac{1}{2}$ | 40 $\frac{1}{2}$ | 11 + 9 | Yukon . . . | M. Egerton. |
| -58 $\frac{1}{4}$ | 8 $\frac{1}{8}$ | ... | 39 $\frac{1}{2}$ (outside) | 24 + 16 | Kenai Peninsula | American National Collection. |
| 58 | 6 | 27 $\frac{1}{4}$ | 41 | 11 + 12 | Cassiar District | R. Hayne. |

¹ *R. t. granti*.² *R. t. arcticus*.

- Owner's measurements.

| Length on out- side curve. | Circum- ference. | Tip to Tip. | Widest inside. | Points. | Locality. | Owner. |
|-------------------------------------|---------------------|------------------|-------------------------------|---------|------------------------|--|
| 58 | 5 $\frac{1}{4}$ | 40 $\frac{1}{4}$ | 45 | 20+14 | Labrador . . . | H. Hesketh Prichard. |
| -1 58 | ... | ... | ... | ... | North Labrador . . . | United States National Museum, Washington. |
| -58 | ... | ... | 44 | 22 | Cassiar . . . | Ph. Oberländer. |
| ¹ 57 $\frac{5}{8}$ | 5 $\frac{1}{4}$ | 13 $\frac{3}{8}$ | ... | 13+7 | Arctic America . . . | British Museum. |
| 57 $\frac{1}{4}$ | 5 $\frac{3}{4}$ | 29 $\frac{1}{4}$ | 36 $\frac{1}{4}$ | 18+10 | Yukon . . . | F. C. Selous. |
| -57 | ... | ... | ... | ... | Cassiar . . . | J. G. Millais. |
| -56 $\frac{1}{2}$ | ... | ... | ... | ... | Do. . . | C. Little. |
| ² 55 $\frac{3}{4}$ | 8 | ... | 44 (outside) | 26+18 | Alaska . . . | American National Collection (Reed Collection). |
| 55 $\frac{1}{2}$ | 6 | 28 | 43 | 13+10 | Stikin River . . . | P. Niedieck. |
| 55 | 6 | 43 | 48 | 12+14 | Cassiar District . . . | F. C. Selous. |
| 55 | 6 | 21 | 35 | 12+10 | Do. . . | W. A. Conduitt. |
| 55 | 6 $\frac{1}{4}$ | 19 | 40 | 19+21 | Do. . . | F. H. Bailey. |
| 54 $\frac{1}{2}$ | 5 $\frac{3}{4}$ | 37 $\frac{1}{4}$ | 44 $\frac{1}{4}$ | 16+13 | Do. . . | Sir A. Armstrong, Bart. |
| -54 $\frac{1}{2}$ | 5 $\frac{1}{4}$ | 30 | 44 $\frac{1}{2}$ | 31 | Alaska . . . | F. T. Colby. |
| 54 | 5 $\frac{3}{4}$ | 31 | 38 $\frac{1}{4}$ | 13+16 | Cassiar District . . . | Lord Osborne Beaucherk. |
| 54 | 6 $\frac{1}{2}$ | 29 | 37 | 22+11 | Alaska . . . | Hon. J. C. Lister. |
| 54 | 4 $\frac{3}{4}$ | 48 | 52 | 21+14 | Canada . . . | D. F. Mackenzie. |
| -54 | ... | ... | ... | 20 | Cassiar . . . | W. S. McCormack. |
| 53 | 4 $\frac{1}{2}$ | 48 $\frac{3}{4}$ | 54 | 12+11 | Labrador . . . | Hon. Walter Rothschild. |
| 52 $\frac{1}{2}$ | 5 $\frac{1}{4}$ | 15 | 26 $\frac{1}{2}$ | 17+12 | N. Canada . . . | J. Talbot Clifton. |
| 52 | 5 $\frac{3}{4}$ | 28 $\frac{1}{4}$ | 31 | 15+13 | E. Yukon . . . | J. Todd. |
| -52 | 5 $\frac{1}{2}$ | ... | 39 $\frac{1}{2}$ (outside) | 11+10 | Cassiar . . . | American National Collection. |
| 52 | 5 | 32 $\frac{1}{4}$ | 37 | 12+11 | Do. . . | Lord Hindlip. |
| 52 | 4 $\frac{5}{8}$ | 28 $\frac{1}{2}$ | 38 | 7+7 | N. Canada . . . | David T. Hanbury. |
| 52 | 5 $\frac{1}{2}$ | 6 | 29 | 15+20 | Do. . . | E. E. P. Cuncliffe. |
| 51 $\frac{1}{2}$ | 6 $\frac{1}{4}$ | 33 | 33 | 12+12 | Cassiar . . . | F. C. Stern. |
| 51 $\frac{3}{8}$ | 4 $\frac{7}{8}$ | 40 $\frac{3}{8}$ | 48 $\frac{3}{8}$ | 17+14 | Hudson's Bay . . . | Sir Edmund G. Loder, Bart. |
| 51 | 6 $\frac{1}{2}$ | 25 $\frac{1}{2}$ | 38 $\frac{1}{4}$ | 20+17 | Cassiar District . . . | P. N. Graham. |
| -2 50 $\frac{1}{2}$ | ... | ... | 45 | ... | Do. . . | A. S. Reed. |
| 50 $\frac{1}{4}$ | 4 $\frac{1}{4}$ | 31 $\frac{1}{2}$ | 38 $\frac{1}{4}$ | 10+9 | Do. . . | Col. H. Appleton. |
| -50 $\frac{1}{8}$ | 6 $\frac{1}{2}$ | ... | 37 $\frac{1}{4}$ | 13+18 | Do. . . | Wilson Potter. |

¹ *R. t. arcticus*.² *R. t. osborni*.

- Owner's measurements.

| Length on out- side curve. | Circum- ference. | Tip to Tip. | Widest inside. | Points. | Locality. | Owner. |
|-------------------------------------|---------------------|------------------|-----------------------------|---------|--------------------|-------------------------------------|
| 50 | 5 $\frac{1}{2}$ | 27 | 38 | 12 + 11 | Barren Grounds | A. Barclay Walker. |
| 49 $\frac{1}{2}$ | ... | ... | ... | 36 | Cassiar | Count Chas. Hoyos. |
| 49 $\frac{1}{2}$ | 6 $\frac{3}{4}$ | 26 | 43 | 18 + 12 | Newfoundland | St. George Littledale. |
| 49 | ... | ... | 39 (G. S.) | 22 | W. Coast Greenland | American Museum of Natural History. |
| 49 | ... | ... | 34 | 36 | ? | Do. |
| 48 $\frac{1}{2}$ | 6 $\frac{3}{4}$ | 26 $\frac{1}{2}$ | 34 | 27 | Newfoundland | F. Gillett. |
| 48 $\frac{1}{2}$ | 6 $\frac{1}{2}$ | 29 | 36 $\frac{3}{4}$ | 20 + 18 | Yukon | J. Todd. |
| 48 | ... | ... | ... | ... | Cassiar | L. B. McCormack. |
| 48 | ... | ... | 43 | 19 | Do. | Lieut. R. C. Dalglish, R.N. |
| 48 | ... | ... | ... | ... | Do. | Col. Max. C. Fleischmann. |
| 47 $\frac{1}{2}$ | 6 $\frac{1}{2}$ | 40 $\frac{3}{4}$ | 38 $\frac{3}{4}$ | 15 + 14 | Itcha Mts., B.C. | W. Neilson. |
| 47 $\frac{1}{2}$ | 5 $\frac{3}{4}$ | 24 $\frac{3}{4}$ | 34 | 22 + 18 | ? | C. H. Wilkinson. |
| 46 $\frac{1}{2}$ | 6 $\frac{1}{2}$ | 16 $\frac{1}{2}$ | 28 | 32 | British Columbia | J. Turner-Turner. |
| 46 $\frac{1}{2}$ | 5 $\frac{1}{2}$ | 38 $\frac{1}{2}$ | 39 $\frac{1}{2}$ | 13 + 10 | Newfoundland | T. P. Miller. |
| 46 $\frac{1}{2}$ | 4 $\frac{1}{2}$ | 26 | 32 | 11 + 8 | Do. | J. T. Lewis. |
| 46 | 4 $\frac{1}{2}$ | 24 $\frac{1}{2}$ | 31 $\frac{1}{2}$ | 15 + 15 | Do. | Capt. H. L. Cottingham. |
| 46 | 5 $\frac{1}{4}$ | 26 $\frac{3}{4}$ | 35 | 15 + 12 | Do. | H. Charrington. |
| 46 | 5 $\frac{1}{2}$ | 28 $\frac{3}{4}$ | 31 $\frac{1}{2}$ | 10 + 10 | Do. | R. H. Venables Kyrke. |
| 46 | 6 $\frac{1}{2}$ | 39 | 43 | 13 + 19 | Do. | G. L. Harrison. |
| 45 $\frac{1}{2}$ | 5 $\frac{1}{2}$ | 31 $\frac{1}{4}$ | 33 $\frac{1}{2}$ | 13 + 12 | Do. | F. C. Williamson. |
| 45 | 5 $\frac{3}{4}$ | 18 $\frac{1}{2}$ | 37 $\frac{1}{2}$ | 17 + 18 | Cassiar District | J. M. Hanbury. |
| 44 $\frac{1}{2}$ | 5 $\frac{3}{4}$ | 20 $\frac{1}{4}$ | 26 $\frac{1}{4}$ | 10 + 12 | Newfoundland | W. R. Greene. |
| 44 $\frac{3}{8}$ | 5 $\frac{1}{8}$ | 34 | 37 | ... | Do. | C. H. Akroyd. |
| 44 | 5 $\frac{1}{2}$ | 31 $\frac{1}{2}$ | 37 | 16 + 13 | ? | Sir Robert Harvey, Bart. |
| 44 | 5 $\frac{3}{4}$ | 24 $\frac{1}{4}$ | 32 $\frac{1}{2}$ | 17 + 21 | Newfoundland | J. G. Millais. |
| 44 | 5 $\frac{1}{2}$ | 18 $\frac{1}{4}$ | 30 | 18 + 13 | Do. | Admiral Sir William Kennedy. |
| 44 | 5 $\frac{3}{4}$ | 19 | 26 $\frac{1}{2}$ | 17 + 14 | Do. | Comdr. A. G. Allgood, R.N. |
| 44 | ... | ... | 38 $\frac{1}{2}$ (G. S.) | 36 | Cassiar District | Madison Grant. |
| 43 $\frac{1}{2}$ | 5 | 29 $\frac{1}{4}$ | 31 | 18 + 10 | Do. | Sir Cavendish Boyle. |
| 43 | 5 $\frac{1}{2}$ | 21 $\frac{1}{2}$ | 29 $\frac{1}{2}$ | 10 + 8 | Do. | Major R. H. Morgan. |
| 42 $\frac{1}{2}$ | 7 $\frac{1}{4}$ | 33 $\frac{1}{4}$ | 38 $\frac{1}{2}$ | 22 + 18 | Do. | R. Gordon Smith. |

¹ *R. t. groenlandicus.*² *R. t. stonei.*³ *R. t. osborni.*

- Owner's measurements.

| Length on out- side curve. | Circum- ference. | Tip to Tip. | Widest inside. | Points. | Locality. | Owner. |
|-------------------------------------|---------------------|------------------|-----------------------------|---------|---------------------------------|--|
| 42 $\frac{1}{2}$ | 5 $\frac{1}{2}$ | 26 $\frac{1}{4}$ | 30 $\frac{3}{4}$ | 23 + 13 | Yukon . . . | A. Benitz. |
| 42 $\frac{1}{4}$ | 6 $\frac{1}{4}$ | 28 $\frac{1}{2}$ | 35 $\frac{1}{2}$ | 24 + 15 | Newfoundland . | Lieut. H. C. Rawson, R.N. |
| - ¹ 42 $\frac{1}{2}$ | ... | ... | 29 $\frac{1}{2}$ (G. S.) | 25 | N.W. Coast of Hud- son's Bay | American Museum of Natural History. |
| 42 | 6 $\frac{1}{4}$ | 24 | 31 $\frac{3}{4}$ | 17 + 14 | Newfoundland . | T. A. Armstrong. |
| 42 | 6 $\frac{1}{2}$ | ... | 18 $\frac{1}{2}$ | 33 | Alaska . . . | Earl of Lonsdale. |
| 42 | 5 $\frac{1}{2}$ | 36 $\frac{1}{2}$ | 39 $\frac{1}{2}$ | 20 + 12 | Newfoundland . | Q. C. Colmore. |
| 42 | 5 $\frac{3}{8}$ | 38 | 41 $\frac{1}{2}$ | 10 + 10 | Do. . . | E. C. Russell. |
| 42 | 6 $\frac{1}{4}$ | 20 $\frac{1}{2}$ | 30 $\frac{1}{2}$ | 13 + 12 | Do. . . | G. C. Whitaker. |
| 41 $\frac{1}{4}$ | 5 $\frac{1}{2}$ | 27 | 30 $\frac{1}{2}$ | 16 + 18 | Do. . . | Capt. F. Blacker. |
| 41 | 6 | 35 | 33 | 20 | British Columbia . | Lieut.-Col. C. C. Ellis. |
| 41 | 5 | 28 $\frac{1}{2}$ | 32 | 14 + 17 | Newfoundland . | S. H. Whitbread. |
| - ² 41 | ... | ... | 36 | 36 | Do. . . | Madison Grant. |
| 41 | 5 $\frac{3}{4}$ | 30 | 35 $\frac{1}{4}$ | 16 + 13 | Canada . . . | Major G. R. Poole. |
| 40 $\frac{3}{4}$ | 6 $\frac{5}{8}$ | 32 $\frac{1}{2}$ | 37 | 20 + 17 | Newfoundland . | His Majesty the King. |
| 40 $\frac{1}{4}$ | 5 $\frac{1}{2}$ | 21 $\frac{3}{4}$ | 29 | 13 + 9 | Do. . . | Major S. Upperton. |
| 40 | 5 $\frac{1}{4}$ | 19 $\frac{1}{4}$ | 26 | 12 + 11 | Do. . . | P. B. Vander Byl. |
| 40 | 6 | 31 $\frac{1}{2}$ | 35 $\frac{1}{2}$ | 19 + 14 | Do. . . | Admiral Sir William Kennedy. |
| 40 | 4 $\frac{1}{4}$ | 21 $\frac{1}{2}$ | 29 $\frac{1}{2}$ | 11 + 14 | Do. . . | R. Wahrmann. |
| 39 $\frac{1}{4}$ | 5 $\frac{3}{4}$ | 37 $\frac{1}{4}$ | 41 $\frac{1}{4}$ | 14 + 14 | Do. . . | Capt. G. M. Lumsden. |
| 39 $\frac{1}{4}$ | 5 $\frac{1}{4}$ | 25 | 30 $\frac{1}{2}$ | 12 + 11 | Do. . . | Sir Robert Harvey, Bart. |
| 38 $\frac{1}{2}$ | 5 | 24 $\frac{3}{4}$ | 31 $\frac{1}{4}$ | 11 + 9 | Do. . . | Capt. H. Holmes-Tarn. |
| 38 | 6 $\frac{3}{4}$ | 24 $\frac{1}{2}$ | 32 | 26 + 24 | Do. . . | Capt. H. T. Smith. |
| 38 | 5 $\frac{3}{4}$ | 18 $\frac{1}{2}$ | 26 $\frac{1}{4}$ | 25 + 12 | Do. . . | Hon. G. Legge. |
| 38 | 4 $\frac{1}{4}$ | 9 $\frac{1}{2}$ | 21 | 12 + 12 | Do. . . | Major W. H. Greenly. |

¹ *R. t. arcticus.*² *R. t. terra-nova.*

- Owner's measurements.

B.—SCANDINAVIAN SPECIMENS.

| Length on out- side curve. | Circum- ference. | Tip to Tip. | Widest inside. | Points. | Locality. | Owner. |
|-------------------------------------|---------------------|------------------|-------------------|---------|----------------------------|---|
| ¹ 60 | 5 $\frac{5}{8}$ | 38 $\frac{5}{8}$ | 41 $\frac{1}{8}$ | 22 + 15 | ? | Sir V. Brooke's Collection. |
| -59 $\frac{1}{2}$ | ... | ... | 41 $\frac{3}{4}$ | 11 + 14 | Norway . . . | R. L. Scott. |
| 59 $\frac{1}{2}$ | 7 | 38 | 44 | 15 + 16 | Do. . . . | J. Whitaker. |
| 59 | 4 $\frac{1}{2}$ | 42 $\frac{1}{2}$ | 46 (outside) | 7 + 5 | Do. . . . | H. J. Elwes. |
| 58 | 6 | 30 $\frac{1}{2}$ | 37 | 33 | Jotunheim, Norway | S. Ratcliff. |
| 57 $\frac{1}{2}$ | 5 | 24 $\frac{1}{2}$ | 44 $\frac{3}{4}$ | 16 + 14 | ? | The late Prince Paul Demidoff. |
| 55 $\frac{1}{2}$ | 5 $\frac{1}{4}$ | 32 | 37 $\frac{1}{2}$ | 17 + 15 | Norway . . . | P. B. Vander Byl. |
| 55 $\frac{1}{8}$ | 6 $\frac{1}{2}$ | 38 | 43 $\frac{1}{8}$ | 18 + 8 | Sundal Fjelds, Nor- way | Capt. Gerard Ferrand. |
| 54 $\frac{1}{2}$ | 4 $\frac{7}{8}$ | 33 $\frac{1}{4}$ | 40 $\frac{3}{4}$ | 15 + 13 | Norway . . . | J. H. Thomas. |
| 54 $\frac{1}{2}$ | 4 $\frac{3}{4}$ | 32 $\frac{3}{4}$ | 41 $\frac{1}{2}$ | 18 + 13 | Do. . . . | H. Hunt. |
| 54 | 5 | 22 | 41 $\frac{3}{4}$ | 16 + 11 | Do. . . . | Kenneth M'Douall. |
| 53 | 4 $\frac{5}{8}$ | 39 $\frac{1}{2}$ | 53 $\frac{1}{4}$ | 15 + 10 | Do. . . . | A. Alexander. |
| 52 $\frac{1}{2}$ | 4 $\frac{3}{4}$ | 20 $\frac{1}{4}$ | 50 $\frac{1}{4}$ | 19 + 13 | Do. . . . | C. M. Black. |
| 52 $\frac{1}{8}$ | 5 | 27 | 36 $\frac{1}{2}$ | 26 | Do. . . . | Abel Chapman. |
| 51 | 4 $\frac{1}{2}$ | 31 | 39 $\frac{1}{2}$ | 14 + 8 | Do. . . . | H. R. H. the Duc d'Orléans. |
| 51 | 4 $\frac{3}{4}$ | 31 $\frac{1}{2}$ | 40 $\frac{1}{2}$ | 12 + 6 | Do. . . . | F. C. Selous. |
| 51 | 5 | 30 $\frac{1}{2}$ | 36 | 11 + 9 | Do. . . . | Sir Robert Harvey, Bart. |
| 50 $\frac{3}{8}$ | 4 $\frac{7}{8}$ | 24 | 29 (outside) | 16 + 13 | Do. . . . | H. R. H. the Duke of Saxe- Coburg and Gotha. |
| 50 | 4 $\frac{3}{4}$ | 27 $\frac{1}{2}$ | 40 $\frac{1}{2}$ | 11 + 10 | Do. . . . | Sir H. Seton-Karr. |
| 49 | 4 $\frac{1}{4}$ | 25 | 36 $\frac{1}{2}$ | 18 + 15 | Do. . . . | T. H. Barnard. |
| 49 | 4 $\frac{1}{2}$ | 23 $\frac{1}{2}$ | 37 $\frac{1}{2}$ | 10 + 6 | Do. . . . | A. L. Jessop. |
| 47 $\frac{1}{2}$ | 4 $\frac{1}{2}$ | 17 | 27 | 18 + 14 | Do. . . . | A. C. Gathorne Hardy. |
| 47 | 4 $\frac{5}{8}$ | 23 | 29 | 17 + 9 | Do. . . . | Kenneth M'Douall. |
| 46 $\frac{1}{2}$ | 6 | 21 $\frac{1}{2}$ | 26 $\frac{1}{2}$ | 37 | Do. . . . | Hon. Walter Rothschild. |
| 2 21 | 3 $\frac{1}{2}$ | 10 $\frac{1}{2}$ | 14 $\frac{3}{8}$ | 15 + 12 | Lapland . . . | Dr. Albert von Stephani. |

- Owner's measurements.

¹ Perished antlers.

Extract from a letter of Mr. J. G. Millais, 14th August 1907:—

"For the purpose of comparison with other local races of reindeer I give the measurements of the twelve best specimens of Newfoundland caribou which I have obtained in the island. In all scientific accounts dealing with the measurements of reindeer antlers no notice is taken of the size of the large brow-shovel, a matter of great importance in determining the respective merits of individual heads. Mere length of antler is not everything in judging the qualifications of deer heads, whilst in this species in particular we must consider beam, span, number of points, symmetry, and size of the large brow-tine, a feature which adds so much to the general character.

| Length on outer curve. | Circum- ference above bez-tine. | Breadth of brow-tine on anterior margin from base to top front point. | Widest inside. | Points. | Locality |
|---------------------------------|--|--|-------------------|---------|--------------------------------|
| 46 | 5½ | 14 | 31 | 45 | Tamnapegawi Lake, 1906. |
| 46 | 6 | 14 | 30 | 35 | Upper Gander, 1905. |
| 43 | 7 | 16¼ | 35 | 36 | Shoehill Ridge, 1906. |
| 42 | 6 | 16½ | 34 | 44 | Upper Gander, 1903. |
| 42 | 5½ | 15 | 31 | 31 | Resequit Hills, 1906. |
| 40 | 5 | 15½ | 32 | 38 | Upper Gander, 1905. Picked up. |
| 40 | 5¼ | 15½ | 39 | 25 | Do. 1905. |
| 38 | 5½ | 15 | 28 | 35 | Do. 1903. |
| 38 | 5½ | 18 | 31 | 35 | Millais's Lake, 1902. |
| 37½ | 6¾ | 17½ | 33 | 32 | Migwell's Brook, 1905. |
| 36 | 7 | 16½ | 29 | 49 | Upper Gander, 1903. |
| 36 | 6½ | 13½ | 38 | 32 | Resequit Hills, 1906. |

"The points of reindeer are difficult to count. No point should be included that does not fulfil the old watchguard or powder-horn test, unless it may be a clean blunt snag at least half an inch from the main horn.

"The Germans count everything as a point upon which a torn piece of paper will rest, but we regard all small excrescences that do not fulfil the old British conditions as of no account. For instance, Captain Cartwright's famous '72 point Labrador head,' which I have recently traced, and on which he counted every prominence has in reality 53 points."

The ROEBUCK (*Capreolus caprea*).(Also known as *Capreolus capreolus*.)

Roebuck may be recognised by the rudimentary tail, and the medium-sized antlers rising close together and almost vertically from the head, without a brow-tine, and regularly forking at a point about two-thirds the total length, with the posterior prong again subdividing, so that the number of points is usually three. There is no gland or tuft on the hock, but one on the upper part of the outer side of the hind cannon-bone. In the European roe the height at the shoulder is about 26 inches. In winter the coat is dark speckly brown with a large white rump-patch, but in summer foxy red, with little or no white behind. As in the Japanese sika, the white hairs of the winter rump-patch expand under the influence of excitement to form a large disc. The range embraces the greater part of Europe as far as the southern Caucasus, Palestine, and perhaps Persia.

| Length on outside curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|--------------------------------|---------------------|----------------|---------------------|--|
| 13 | 4 | 14½ | Germany | Viscount Powerscourt. |
| 13 | 4 | 14½ | Do. | Do. |
| 13 | 3½ | 10¼ | Do. | Do. |
| -13 | 6½ | 8½ | Do. | H.R.H. the Duke of Saxe-Coburg and Gotha. |
| -13 | 7 | 10 | Do. | Do. |
| -13 | 6½ | 8 | Do. | Do. |
| 12¾ | 3 | 8½ | Do. | Viscount Powerscourt. |
| 12½ | 4 | 9½ | Do. | Do. |
| 12¼ | 4¾ | 9 | Servia | Do. |
| 12⅞ | 3¾ | 4½ | Austria | Lieut.-Col. J. Marriott. |
| ¹ -12⅞ | ... | ... | Perthshire | R. Moncrieff. |
| -12'11 | 6'12 | 5'4 | Hungary | Count Wenkheim. |
| 11⅝ | ... | 6 | Monymusk, N.B. . . | Sir Arthur Grant, Bart. |
| ² 11½ | ... | ... | Orton, Speyside . . | Sir G. Macpherson Grant, Bart. |
| 11½ | 3 | 8¾ | Germany | Viscount Powerscourt. |
| -11¼ | 6 | 6 | Perth | J. G. Millais. |
| 11¼ | 4½ | 8¾ | Servia | Viscount Powerscourt. |
| -11⅞ | 4¾ | ... | Scotland | Duke of Bedford. |

- Owner's measurements.

¹ and ² Recorded by J. G. Millais (*British Deer and their Horns*).

| Length on outside curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|--------------------------------|---------------------|-----------------|----------------------------|--|
| -11 $\frac{1}{8}$ | 4 $\frac{1}{2}$ | ... | (Single antler dug up) | J. G. Millais. |
| 11 | 7 $\frac{1}{4}$ | ... | Ross-shire . . . | H. M. Warrand. |
| 11 | 3 $\frac{3}{4}$ | 6 $\frac{1}{4}$ | Dorset . . . | F. Gordon Scott. |
| 11 | 5 $\frac{1}{16}$ | 7 $\frac{1}{2}$ | Ross-shire . . . | H. M. Warrand. |
| ¹ 11 | ² 8 | 8 $\frac{3}{4}$ | Germany . . . | Viscount Powerscourt. |
| 11 | 7 $\frac{1}{8}$ | 6 $\frac{7}{8}$ | Sligo, Ireland . . . | Sir Henry Gore Booth, Bart. |
| 11 | 3 $\frac{1}{2}$ | 6 $\frac{1}{2}$ | Ballindalloch . . . | G. B. Macpherson Grant. |
| -10 $\frac{1}{2}$ | 3 $\frac{1}{2}$ | 3 $\frac{1}{2}$ | Bohemia . . . | H S.H. Prince Alexander of Thurn and Taxis. |
| 10 $\frac{1}{2}$ | ... | ... | Beaufort, Ross-shire . . . | J. G. Millais. |
| 10 $\frac{1}{2}$ | 6 $\frac{1}{2}$ | 6 | Ballindalloch . . . | Sir G. Macpherson Grant, Bart. |
| 10 $\frac{1}{2}$ | 3 $\frac{1}{2}$ | 5 $\frac{3}{4}$ | Inverness . . . | C. Macpherson Grant. |
| 10 $\frac{1}{2}$ | 4 | 6 $\frac{1}{4}$ | Austria . . . | H.R.H. the Duc d'Orléans. |
| -10 | 2 $\frac{1}{4}$ | 4 $\frac{1}{2}$ | Ross-shire . . . | Sir Edmund G. Loder, Bart. |
| 10 | 4 | 4 $\frac{3}{4}$ | Glenmoriston . . . | J. Hamilton Leigh. |
| -10 | 2 $\frac{3}{4}$ | 5 $\frac{3}{4}$ | Findrac . . . | E. C. P. Hull. |
| -10 | 4 | 3 $\frac{5}{8}$ | Spain . . . | Jose de Irruele. |
| -9 $\frac{7}{8}$ | 2 $\frac{1}{2}$ | 4 $\frac{5}{8}$ | Bohemia . . . | Prince Alexander of Thurn and Taxis. |
| 9 $\frac{7}{8}$ | 5 | 5 | Dorset . . . | J. E. Harting. |
| 9 $\frac{3}{4}$ | 8 $\frac{1}{8}$ | ... | Sligo . . . | Sir Henry Gore Booth, Bart. |
| -9 $\frac{3}{4}$ | 3 $\frac{1}{4}$ | 5 | Spain . . . | Abel Chapman. |
| 9 $\frac{3}{4}$ | 3 | 6 $\frac{1}{4}$ | Scotland . . . | A. M. Yule. |
| 9 | 2 $\frac{3}{4}$ | 2 $\frac{3}{4}$ | ? | G. L. Denman. |
| 8 $\frac{7}{8}$ | 2 $\frac{1}{2}$ | 5 | Scotland . . . | P. Illingworth. |
| 8 $\frac{5}{8}$ | 3 | 2 $\frac{3}{8}$ | Morar . . . | Walter Jones. |
| 8 $\frac{1}{2}$ | 3 | 4 $\frac{1}{2}$ | France . . . | British Museum. |

- Owner's measurements.

¹ Recorded by J. G. Millais (*British Deer and their Horns*).

² Abnormal (Perauque).

MANCHURIAN ROEBUCK (*Capreolus manchuricus* or *C. bedfordi*).

Said to be rather larger than the European species, with the antlers small and slender, and the winter coat less distinctly brown.

Distribution.—Manchuria.



Antlers of Tian-Shan Roebuck. From a photograph lent by Mr. Carl Hagenbeck.

The ASIATIC ROEBUCK (*Capreolus pygargus*).

Paler and larger than the last, the height at the shoulder varying from 30 to 34 inches ; the ears shorter and more hairy, the white rump-patch larger, and the antlers longer and more rugose with numerous knotted snags or "pearls."

Distribution.—From the northern Caucasus, the Altai, and mountains of Turkestan to Eastern Siberia. The typical representative is the Altai roebuck. The Tian Shan race (*C. p. tianshanicus*) has antlers somewhat different in form and more branched. In one type of this race the antlers diverge widely, with 4 or 5 tines each, but in a second the divergence and the number of tines are less.

| Length on outside curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|--------------------------------|---------------------|------------------|-----------------|-------------------------|
| *-18 $\frac{9}{16}$ | 16 $\frac{3}{4}$ | ... | ? | Carl Hagenbeck. |
| *17 $\frac{3}{4}$ | 4 | 12 $\frac{1}{2}$ | Tian Shan . . . | Hon. Walter Rothschild. |
| *16 | 4 $\frac{1}{4}$ | 16 | Do. . . . | R. F. Glyn. |

- Owner's measurements.

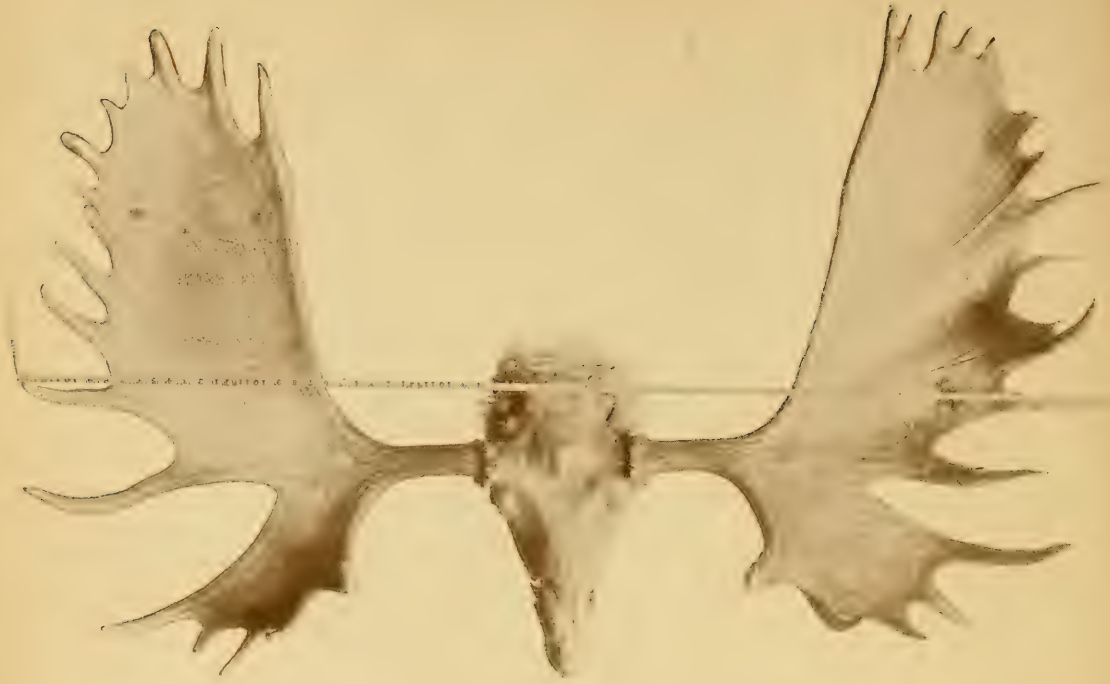
¹ Circumference of burr.

* Tian Shan race.

| Length on outside curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|--------------------------------|---------------------|------------------|------------------------|-----------------------------|
| 16 | 4 $\frac{1}{2}$ | 12 | ? | Viscount Powerscourt. |
| * 15 $\frac{1}{2}$ | 4 $\frac{1}{2}$ | 13 $\frac{1}{2}$ | Tian Shan . . . | J. V. Phelps. |
| * 15 $\frac{1}{2}$ | 3 $\frac{3}{4}$ | 12 | Do. . . . | Capt. C. M. Threlfell. |
| * 15 $\frac{1}{2}$ | 4 $\frac{1}{2}$ | 18 $\frac{1}{2}$ | Do. . . . | E. W. Dixon. |
| * 15 $\frac{1}{2}$ | 3 $\frac{1}{2}$ | 14 | Do. . . . | Capt. J. N. Price Wood. |
| * 15 $\frac{1}{2}$ | 3 $\frac{1}{2}$ | 15 | Do. . . . | P. F. Hadow. |
| 15 $\frac{1}{2}$ | 4 $\frac{1}{4}$ | 8 $\frac{1}{2}$ | ? | Viscount Powerscourt. |
| * 15 $\frac{1}{2}$ | 5 | 11 $\frac{3}{4}$ | Tian Shan . . . | P. B. Vander Byl. |
| 15 $\frac{1}{2}$ | 5 $\frac{1}{2}$ | 8 | Siberia . . . | Sir Edmund G. Loder, Bart. |
| 15 $\frac{1}{2}$ | 4 $\frac{7}{8}$ | 12 $\frac{1}{4}$ | Do. . . . | T. D. M. Cardeza. |
| 15 $\frac{1}{2}$ | 3 $\frac{1}{2}$ | 11 | Do. . . . | Major W. Anstruther Gray. |
| * 15 $\frac{1}{2}$ | 4 $\frac{1}{2}$ | 11 | Tian Shan . . . | Lord Osborne Beauclerk. |
| * 15 | 4 | 10 $\frac{1}{2}$ | Do. . . . | Prince Colloredo Mannsfeld. |
| 15 | 3 $\frac{3}{8}$ | 15 | Altai . . . | Edinburgh Museum. |
| 14 $\frac{1}{2}$ | 3 $\frac{3}{4}$ | 15 $\frac{1}{2}$ | Do. . . . | J. Hamilton Leigh. |
| 14 $\frac{1}{2}$ | 4 | 15 | Do. . . . | Duke of Bedford. |
| 14 $\frac{1}{2}$ | 3 $\frac{1}{2}$ | 12 $\frac{5}{8}$ | Tian Shan . . . | B. Chew. |
| 14 $\frac{1}{2}$ | 4 | 10 | Do. . . . | Lieut.-Col. A. H. Hussey. |
| 14 $\frac{1}{2}$ | 4 $\frac{1}{4}$ | 9 | Do. . . . | J. H. Miller. |
| * 14 $\frac{1}{2}$ | 3 $\frac{3}{4}$ | 8 $\frac{3}{4}$ | Tekkes . . . | R. Hayne. |
| 14 $\frac{1}{2}$ | 3 $\frac{1}{2}$ | ... | Siberia . . . | Paris Museum. |
| * 14 | 3 $\frac{7}{8}$ | 15 $\frac{3}{4}$ | Tian Shan . . . | P. Church. |
| * 14 | 3 $\frac{1}{2}$ | 8 $\frac{7}{8}$ | Do. . . . | G. L. Harrison. |
| * 14 | 3 $\frac{1}{2}$ | 7 $\frac{1}{4}$ | Do. . . . | H. Whitaker. |
| 13 $\frac{1}{2}$ | 2 $\frac{7}{8}$ | 13 $\frac{5}{8}$ | Semirechensk Altai . . | H. J. Elwes. |
| 13 $\frac{1}{2}$ | 3 $\frac{3}{4}$ | 11 $\frac{1}{2}$ | ? | H. R. H. the Duc d'Orléans. |

- Owner's measurements.

* Tian Shan race.



Skull and Antlers of Alaskan Elk.
From a specimen in the possession of the Duke of Westminster.

The ELK or MOOSE (*Alces machlis*).

Elk are the largest members of the deer tribe, and distinguished by their ungainly form, long limbs, broad, produced, and flabby muzzle (all of which, except a small triangular patch below the nostrils, is covered with hair), the presence of a pendulous hairy organ (the so-called "bell") on the throat of the males, and the form and position of the antlers in that sex. The latter are set on the skull with their bases at right angles to the middle line of the face, and have neither brow nor bez tines. Usually the antlers expand after a short distance into a broad palmation or "shovel," carrying a number of snags on the outer border. In young elk each antler is divided in a fork-like manner into a small front and a larger hind portion. The main hoofs are long and pointed, and the lateral pair large; there is a gland and tuft of hair both on the hock and hind cannon-bone, the latter being situated high up. The tail is very short. From birth to old age elk are uniformly coloured; the general tint of the hair, which is long, coarse, and somewhat brittle, varying from yellowish grey to deep blackish brown above, with the legs lighter, and being usually darker in the American than in the European race. The height varies from 5 feet

9 inches at the shoulder in Scandinavian examples to as much as 6 feet 9 inches in the Alaskan race; the weight from 900 to 1600 lbs., that of the antlers being from about 60 lbs. to 100 lbs. The antlers of American elk are more expanded and carry more points than European specimens.

Elk inhabit the forests and marshy districts of Scandinavia, Eastern and Northern Russia, and the Altai; and in America (where they are invariably known as moose) at the present time are found in Alaska, Montana, Nova Scotia, and New Brunswick. In some localities Scandinavian elk not unfrequently show little or no palmaria of the antlers, and thus approximate to the East Siberian form. Elk appear to be nearly related to roebuck.

A.—AMERICAN and ALASKAN ELK

(*A. machlis americanus* and *A. m. gigas*).

OWNER'S MEASUREMENTS.

| Greatest width. | Length to longest tine. | Circumference above burr. | Tip to Tip. | Breadth of palm. | Points. | Locality. | Owner. |
|-----------------|-------------------------|---------------------------|-------------|------------------|---------|---------------|---|
| 1 78½ | ... | ... | ... | ... | ... | Yukon . . | Field Museum, Chicago. |
| 2 77½ | ... | ... | ... | ... | 17 + 17 | Alaska . . | P. Niedieck. |
| 75 | 41½ | 10½ | ... | 21½ | 23 + 19 | Do. . . | American National Collection (Reed Collection). |
| 75 | ... | ... | ... | ... | ... | ? | Canadian Pacific Collection. |
| 74½ | ... | ... | ... | ... | ... | Alaska . . | Chicago Academy of Science. |
| 74 | ... | ... | ... | ... | ... | Do. . . | American Museum of Natural History. |
| 73½ | ... | ... | ... | 23 | 24 + 14 | Do. . . | C. F. Periolot. |
| 71½ | 49 | 8½ | ... | 16 | 20 + 20 | Do. . . | Sir Edmund G. Loder, Bart. |
| 71½ | 48 | 9½ | ... | 17¾ | 18 + 16 | ? | American National Collection. |
| 71½ | 48 | 9½ | ... | 17¾ | 18 + 16 | Alaska . . | Do. |
| 3 69½ | ... | ... | ... | 26 | ... | Do. . . | H. C. Thompson. |
| 69 | 55 | 11 ? | 37 | 21 | 21 | Do. . . | F. B. Tolhurst. |
| 69 | 48 | 10 | ... | 15 | 32 | Do. . . | Dall De Weese. |
| 68½ | 41½ | ... | ... | 16 | 17 | New Brunswick | Dr. Munro. |
| 67 | 45½ | 8½ | 45½ | 12 | 18 + 11 | Alaska . . | F. T. Colby. |
| 67 | ... | ... | ... | ... | 23 | Do. . . | J. H. Whitehouse. |
| 66 | 38½ | 9½ | 44 | 14 | 28 | New Brunswick | S. Decatur. |
| 64½ | 47½ | 8½ | 45½ | 15½ | 31 | ? | Grahamstown Museum. |
| 62¾ | 44 | 9 | 41 | 18 | 20 + 12 | New Brunswick | N. T. de Pauw. |
| 61½ | 44 | ... | ... | ... | ... | Canada . . | The late Gen. L. Dashwood. |
| 61 | 38 | 11 ? | 50 | 14 | 26 | New Brunswick | J. Bodkin. |
| 60 | ... | ... | ... | ... | ... | Cassiar . . | Count C. Hoyos. |
| 60 | ... | ... | ... | ... | ... | Do. . . | Ph. Oberländer. |
| 59½ | ... | ... | ... | ... | 24 | Quebec . . | F. T. Colby. |
| 58¾ | 44 | 9 | ... | ... | 15 + 15 | New Brunswick | Kenneth Crossley. |
| 57 | 35 | 8½ | 31 | 10 | 11 + 11 | Quebec . . | Major G. R. Poole. |
| 56 | 46½ | 8¾ | 29 | 13 | 10 + 9 | Do. . . | A. W. Wilson. |

¹ Skull and antlers weighed 91 lbs.

² Weight of antlers and skull, 94½ lbs.

³ Height at shoulder, 6 ft. 8 in. ?; skull and antlers, 63 lbs.; estimated weight, 1700 lbs.

| Greatest width. | Length to longest time. | Circumference above burr. | Tip to Tip. | Breadth of palm. | Points. | Locality. | Owner. |
|------------------|-------------------------|---------------------------|------------------|------------------|---------|------------------|---|
| 74 $\frac{1}{4}$ | 44 | 12 | 45 | 13 $\frac{1}{2}$ | 15 + 13 | Alaska . . | Capt. C. R. E. Radclyffe |
| 72 | 47 $\frac{1}{4}$ | 9 $\frac{1}{4}$ | 37 $\frac{1}{2}$ | 16 $\frac{1}{4}$ | 20 + 17 | Do. . . | Duke of Westminster. |
| 70 | 46 | 9 | 42 $\frac{1}{2}$ | 15 | 14 + 14 | Do. . . | R. F. Glyn. |
| 68 $\frac{3}{4}$ | 49 | 11 | 36 | 15 $\frac{1}{2}$ | 14 + 14 | Do. . . | P. Niedieck. |
| 68 $\frac{3}{4}$ | 46 | 10 | 43 | 14 | 11 + 8 | Do. . . | David T. Hanbury. |
| 67 $\frac{3}{4}$ | 43 | 11 | 48 | 15 | 15 + 12 | Do. . . | P. B. Vander Byl. |
| 66 | 44 | 10 | 50 | 12 | 12 + 11 | Do. . . | Capt. C. R. E. Radclyffe. |
| 66 | 42 | 9 $\frac{3}{4}$ | 42 | 19 $\frac{1}{2}$ | 19 + 17 | E. Yukon . | F. C. Selous. |
| 65 $\frac{1}{4}$ | .. | ... | ... | ... | 13 + 10 | New Brunswick | F. H. Cook. |
| 65 | 41 | ... | ... | 24 | 14 + 13 | Manitoba . | The late Otho Shaw. |
| 64 | 44 | .. | ... | 10 | 10 + 9 | New Brunswick | Capt. H. Holford. |
| 64 | 47 | 8 $\frac{3}{4}$ | 40 | 13 | 16 + 16 | Alaska . . | W. H. Welsh. |
| 63 $\frac{1}{2}$ | 45 $\frac{1}{2}$ | 10 $\frac{1}{4}$ | 43 | 22 | 19 + 15 | Do. . . | Hon. Walter Rothschild. |
| 63 $\frac{1}{2}$ | 45 | 9 | 41 | 15 | 15 + 13 | Do. . . | David Davies. |
| 63 $\frac{1}{2}$ | 37 | 7 $\frac{3}{4}$ | 39 $\frac{1}{2}$ | 15 $\frac{3}{4}$ | 12 + 12 | Yukon . . | F. C. Selous. |
| 62 | 46 $\frac{1}{2}$ | 9 $\frac{3}{4}$ | 35 | 21 | 18 + 16 | Do. . . | Lord Elphinstone. |
| 59 $\frac{3}{4}$ | 38 $\frac{1}{2}$ | 7 | 40 | 13 | 9 + 10 | Cassiar District | P. N. Graham. |
| 59 $\frac{1}{4}$ | 38 | 6 $\frac{1}{2}$ | ... | 9 $\frac{3}{4}$ | 11 + 11 | ? | H. R. H. the Duke of Saxe-Coburg and Gotha. |
| 58 $\frac{3}{4}$ | 36 $\frac{3}{4}$ | 6 $\frac{1}{2}$ | 36 $\frac{1}{2}$ | 9 | 9 + 9 | Cassiar District | Lord Osborne Beauclerk. |
| 58 $\frac{1}{2}$ | 45 | 7 $\frac{1}{2}$ | 42 | 15 $\frac{1}{2}$ | 14 + 14 | New Brunswick | E. C. Russell. |
| 58 $\frac{1}{2}$ | 43 $\frac{1}{4}$ | 6 $\frac{3}{4}$ | 35 | 11 $\frac{1}{2}$ | 13 + 11 | Do. . . | Major W. H. Greenly. |
| 57 $\frac{3}{4}$ | 37 $\frac{3}{4}$ | 8 | 35 $\frac{3}{4}$ | 11 $\frac{1}{2}$ | 11 + 13 | Canada . . | Thomas Bate. |
| 57 $\frac{1}{2}$ | 38 | 8 | 21 $\frac{1}{2}$ | 14 | 18 + 15 | Do. . . | C. H. Akroyd. |
| 57 $\frac{1}{4}$ | 36 | 6 $\frac{3}{4}$ | 38 $\frac{1}{2}$ | 12 | 12 + 11 | Cassiar District | W. A. Conduitt. |
| 57 $\frac{1}{4}$ | 41 | 8 $\frac{1}{4}$ | 35 | 11 | 11 + 11 | Maine . . | T. D. M. Cardeza. |
| 57 $\frac{1}{8}$ | 40 $\frac{1}{2}$ | 8 | 35 | 13 $\frac{1}{4}$ | 12 + 11 | Do. . . | J. S. Braithwaite. |
| 57 | 45 | 8 $\frac{1}{4}$ | 38 | 13 $\frac{1}{2}$ | 10 + 9 | Alaska . . | Hon. J. C. Lister. |
| 56 $\frac{1}{2}$ | 39 $\frac{1}{2}$ | 7 $\frac{3}{4}$ | 37 | 13 $\frac{1}{2}$ | 14 + 11 | ? | Sir Peter Walker, Bart. |
| 56 | 41 | 8 | 33 | 12 $\frac{1}{4}$ | 16 + 14 | Cassiar District | R. L. Fenwick. |
| 54 $\frac{1}{2}$ | 40 $\frac{1}{2}$ | 7 $\frac{1}{2}$ | 35 | 13 | 9 + 9 | New Brunswick | A. C. Bell. |
| 54 | 36 $\frac{1}{2}$ | 8 | 43 $\frac{1}{2}$ | 7 $\frac{1}{4}$ | 9 + 9 | Manitoba . | T. P. Kempson. |
| 54 | 40 | 8 | 38 | 10 | 10 + 8 | British Columbia | W. C. Neilson. |

| Greatest width. | Length to longest tine. | Circumference above burr. | Tip to Tip. | Breadth of palm. | Points. | Locality. | Owner. |
|-----------------|-------------------------|---------------------------|-------------|------------------|---------|---------------|-----------------------|
| 53½ | 41 | 9 | 28½ | 13½ | 15+14 | Canada . . | His Majesty the King. |
| 53½ | 41 | 7½ | 31½ | 13½ | 16+18 | Do. . . | Duke of Bedford. |
| 52½ | 37½ | 9 | 42½ | 10 | 9+9 | Quebec . . | Capt. E. C. Hamilton. |
| 48½ | 33½ | 6¾ | 41½ | 12 | 11+7 | New Brunswick | H. G. Watson. |

B.—EUROPEAN ELK (*A. machlis typicus*).

| | | | | | | | |
|-----------------|-----|-----|-----|-----|-------|--------------------|------------------------------------|
| 52 | 32 | 7 | ... | 9 | 9+9 | Norway . . | H. J. Elwes. |
| 51¾ | 33 | 8½ | 36½ | 15½ | 10+10 | Do. . . | Capt. Gerard Ferrand. |
| 49 | ... | ... | 35 | 6 | 8+8 | Sweden . . | J. A. M'Mullen. |
| 48¾ | 30½ | 8 | 44 | 5 | 4+4 | Norway . . | Capt. Pitt Taylor. |
| 48 | 32 | 8¾ | 37½ | 11½ | 10+9 | Nr. St. Petersburg | Prince E. Demidoff. |
| 47 | 28 | 6½ | 32 | 9 | 8+8 | Norway . . | The late Sir H. Pottinger, Bart. |
| 46 | 32½ | 7½ | 33 | 11½ | 10+10 | Sweden . . | Capt. Gerard Ferrand. |
| ¹ 46 | 30¾ | 6½ | 43 | 10½ | 15 | Norway . . | Abel Chapman. |
| 45 | 31 | 7 | 28 | ... | 17 | Do. . . | S. Ratcliff. |
| 44½ | 30½ | 7½ | 29½ | 10 | 9+8 | Do. . . | Sir Victor Brooke's Collection. |
| 44½ | 30½ | ... | 40 | 8¾ | 17 | Do. . . | Thomas Bate. |
| 43½ | 29 | 7½ | ... | 10½ | 24 | Do. . . | Sir Peter Walker, Bart. |
| 43½ | 32 | 6 | ... | 9½ | 7+8 | Russia . . | British Museum (Sir Edward Caley). |
| 43½ | 28½ | 6 | 33½ | 11 | 12+10 | Lithuania . . | Prince Radziwill. |
| 43 | 20½ | 6½ | 34½ | 9 | 10+8 | Norway . . | A. W. Mayo Robson. |
| 42 | 20¾ | 7 | 30½ | 4½ | 6+6 | Russia . . | The late Prince Paul Demidoff. |
| 42 | ... | ... | ... | ... | 16 | Norway . . | Sir H. Seton-Karr. |
| 41½ | 32 | 6½ | 25½ | 6½ | 6+7 | Do. . . | Do. |

- Owner's measurements.

¹ Estimated weight, 1260 lbs.



Antlers of East Siberian Elk, from the Hon. Walter Rothschild's specimen.

C.—EAST SIBERIAN ELK (*A. machlis bedfordiæ*).

This race shows a marked tendency to absence of palmation in the antlers, which usually have four or five large tines on each side. Certain antlers from East Siberia are, however, distinctly palmated, but appear to differ somewhat in form from ordinary European specimens.

| Greatest width. | Length to longest tine. | Circumference above burr. | Tip to Tip. | Points. | Locality. | Owner. |
|-----------------|-------------------------|---------------------------|-------------|---------|-------------|-------------------------|
| 42½ | 30½ | 7½ | 28 | 6+5 | Siberia . . | Hon. Walter Rothschild. |
| 39½ | 26½ | 8 | 37 | 4+3 | Do. . . | British Museum. |
| 37½ | 31¾ | 8 | 32 | 5+4 | Do. . . | Hon. Walter Rothschild. |



Head of Milu Deer.

The MILU or PÈRE DAVID'S DEER (*Elaphurus davidianus*).

This remarkable deer differs from all the preceding, except elk and roebuck, by the absence of a brow-tine to the antlers, which are large and branching, the beam forking at a comparatively short distance above the burr, and the front prong of the fork again dividing, while the hind prong is long and straight. The bushy tail is longer than in any other deer, and the neck of the male is maned. There is a gland on the outer side of the upper half of the hind cannon-bone, but none on the hock. The colour is uniformly tawny in the adult, but spotted in the young. Height at shoulder about 3 feet 9 inches. In captivity the antlers are frequently shed twice a year.

Distribution.—Northern China or (?) Kashgaria ; unknown in the wild state, and apparently now represented only by the herd at Woburn Abbey, Bedfordshire.

| Length on out- side curve. | Circum- ference. | Tip to Tip. | Widest inside. | Points. | Locality. | Owner. |
|-------------------------------------|---------------------|-------------------|-------------------|---------|----------------------|-----------------------------------|
| -33 $\frac{5}{8}$ | 5 $\frac{7}{8}$ | 25 $\frac{1}{2}$ | ... | 21+17 | ? | 19th Punjabi Infantry. |
| 32 $\frac{7}{8}$ | 6 $\frac{3}{8}$ | 13 $\frac{5}{8}$ | 18 $\frac{1}{2}$ | 8+8 | Near Pekin | Sir Edmund G. Loder, Bart. |
| ¹ 32 | 7 $\frac{1}{2}$ | ... | ... | 10+8 | ? | Duke of Bedford. |
| -31 | 6 | ... | ... | 3+3 | ? | American National Collection. |
| 31 | 4 $\frac{3}{4}$ | 23 | ... | 7+6 | ? | British Museum (Duke of Bedford). |
| -30 $\frac{3}{4}$ | 5 | 35 $\frac{1}{16}$ | 35 $\frac{1}{16}$ | 11+10 | Imperial Park, Pekin | Paris Museum (Type specimen). |
| 29 $\frac{1}{2}$ | 5 $\frac{1}{4}$ | ... | ... | 5+5 | ? | Duke of Bedford. |
| -29 $\frac{1}{4}$ | 6 $\frac{3}{8}$ | 29 | ... | 3+2 | ? | Maj. W. Anstruther Gray. |
| 28 $\frac{1}{2}$ | 5 $\frac{3}{8}$ | 26 $\frac{1}{2}$ | ... | 3+3 | ? | Hon. Walter Rothschild. |
| 28 $\frac{1}{4}$ | 6 $\frac{1}{2}$ | ... | ... | 8+8 | ? | Duke of Bedford. |
| 27 | 5 $\frac{7}{8}$ | 20 $\frac{1}{4}$ | ... | 6+5 | ? | British Museum. |
| ² 25 | 5 | ... | ... | 6+4 | Bred in England | Duke of Bedford. |
| 22 | 4 $\frac{5}{8}$ | ... | ... | 4+3 | Do. | Do. |

- Owner's measurements.

¹ Back-tine of this head measures 32 $\frac{1}{2}$ inches.

² Back tine measured 28 inches from beam of antler.



Antlers of Virginian White-tailed Deer.

The **WHITE-TAILED DEER** (*Mazama* [*Dorcelaphus*] *americana*).

(Otherwise *Cariacus virginianus* or *Odocoileus virginianus*.)

Exclusive of the wapiti, all the deer of America are distinguished from those of the Old World, except elk, roebuck, and milu deer, by the absence of a brow-tine to the antlers, which are either regularly forked or spike-like, and quite different from those of either roebuck or milu deer. In the white-tailed deer they are large and complex, with a long sub-basal snag, and the front prong of the main fork developed at the expense of the hind one, and carrying a number of snags on its upper surface. Tail long. A gland-tuft on the hock, and a small cylindrical white one with a black centre near the lower end of the hind cannon-bone. Colour of upper-parts chestnut in summer and bluish grey in winter, with the under surface of the tail and the buttocks pure white. Typically from Eastern North America, where the height at the shoulder reaches to 3 feet 1 inch, but represented by numerous races in other parts of the continent, which gradually decrease in size and complexity of antlers towards the south, where they extend to Peru, Bolivia, and Guiana. Weight of a specimen of the typical race shot by Mr. Selous, 12 st. 7 lbs.

Mazama is the oldest name for the American deer, and may be employed if all are included in one genus. If they are split up,

Mazama is the title for the brockets, while the white-tail and its allies may be called *Dorcelaphus* or *Cariacus*, although American writers prefer *Odocoileus*, based on a fossil tooth.

A.—NORTHERN RACES (M. americana typica, etc.).

This typical race inhabits Virginia, its range including eastern N. America from Ontario and Maine to Florida, and westward to the Missouri. In Canada and New England it is replaced by the larger and greyer *M. a. borealis*; and there are several other races in the States.

| Length on outside curve. | Circum- ference. | Tip to Tip. | Widest inside. | Points. | Locality. | Owner. |
|-----------------------------------|---------------------|------------------|-------------------|---------|---------------------|----------------------------|
| 29 | 5½ | 17 | 22 | 7+6 | Maine . . . | J. C. Phillips. |
| 27½ | 5¾ | Single antler | .. | 16 | N. America . | British Museum. |
| -27¼ | ... | 18½ | .. | 19+19 | Missouri . . | Berlin Museum. |
| 27½ | 4¾ | 14¼ | 19 | 6+6 | N. America . | British Museum. |
| 26¾ | 4¾ | 9½ | 20 | 20 | Do. . . | Major James Grant. |
| 26¼ | 5½ | 4¾ | 17¼ | 13+13 | Ontario . . | W. S. Browne. |
| 26 | 4½ | 5½ | 18 | 8+7 | Maine . . . | T. D. M. Cardeza. |
| 26 | 4½ | 9 | 16½ | 6+6 | ? . . . | C. A. Kitson. |
| 25¾ | 4½ | 9 | 19 | 11 | Maine . . . | H. S. Wellcome. |
| 25¾ | 4½ | 10¾ | 19 | 15+13 | Texas . . . | The late Capt. F. Cookson. |
| 25 | 5 | 6½ | 19 | 6+5 | E. Kootenay, B.C. . | Col. A. Charlesworth. |
| 24½ | 4½ | 12¾ | 18½ | 6+6 | ? . . . | J. Carr Saunders. |
| -24 | 6½ | 12 | 16 | 7+6 | Alberta . . . | N. J. Dinnen. |
| -24 | 4½ | 119½ | ... | 18 | Nebraska . . . | G. B. Grinnell. |
| -23¾ | 6 | 12 | 16¾ | 5+4 | Wyoming . . . | James J. Harrison. |
| 23¾ | 4¾ | 7½ | 18½ | 4+4 | New Brunswick . . | W. H. Lindsay. |
| -23½ | 4½ | 4½ | 14½ | 7+10 | Nebraska . . . | Dr. Albert von Stephani. |
| 23 | 5 | 5 | 16 | 6+6 | British Columbia . | J. Turner-Turner. |
| 23 | 4½ | 14 | 20½ | 7+5 | Canada . . . | J. A. Douglas. |
| -22½ | 4 | 115¾ | ... | 12 | Medora, N.D. . . | Theodore Roosevelt. |
| 22 | 4¼ | 6 | 14¼ | 7+4 | New York State . . | Sir Edmund G. Loder, Bart. |
| 1 ♀ 12¼ | 4 | 8 | .. | 3+3 | British Columbia . | J. Turner-Turner. |

- Owner's measurements.

1 Spread.



Head of Mexican White-tailed Deer in the Collection of
Major W. Anstruther Gray.

B.—**MEXICAN WHITE-TAIL** (*M. americana lichtensteini*).

This is one of the smaller races of the species, the height at the shoulder ranging from about 33 to 36 inches, and the antlers being usually smaller and simpler than in the northern race.

Distribution.—Mexico. In Northern Mexico this race is represented by the Texan *M. a. texana*, and in the extreme south by *M. a. tolteca*, which does not turn red. The Central American specimens entered below belong to other races.

| Length on out- side curve. | Circum- ference. | Tip to Tip. | Widest inside. | Points. | Locality. | Owner. |
|-------------------------------------|---------------------|----------------|-------------------|---------|------------|---------------------------------|
| 18½ | ... | 9½ | ... | 5+4 | Mexico | J. C. Phillips. |
| 14 | 3½ | 9 | ... | ... | Do. | Major W. Anstruther Gray. |
| 13½ | 3½ | 6¾ | 11¾ | 3+3 | Do. | British Museum. |
| 13½ | 3½ | 7 | 11½ | 4+4 | Venezuela | Hon. Walter Rothschild. |
| 11¾ | 3 | 4½ | 9½ | 3+3 | Costa Rica | Sir Edmund G. Loder, Bart. |
| 8½ | 2½ | 4½ | 6½ | 3+4 | Mexico | Sir Victor Brooke's Collection. |

— Owner's measurements.



Head of Mule-Deer.

The **MULE-DEER** (*Mazama* [*Dorcelaphus*] *hemionus*).

(Otherwise *Cariacus macrotis*, or *Odocoileus hemionus*.)

Antlers with a much shorter sub-basal snag than in the white-tailed deer, beyond which the beam is directed outwards for a short distance, and then curves upwards to form a regular fork, both prongs of which are usually equal, and generally subdivide so as to form five points on each side. Ears large and heavy; tail short and small, naked below basally, with a black tip. Gland-tufts on hock and cannon-bone coloured like the leg; the latter of these elongated and situated on the upper half of the cannon-bone. General colour of upper-parts yellowish tawny in summer, brownish or rufous speckled

grey in winter, with a brown horse-shoe mark on the forehead. Height at the shoulder, 3 feet 3 or 4 inches in the typical form. Weight (exceptional), 17 stone 2 lbs. (F. C. Selous).



Head of Mule-Deer from Colorado, in the possession of Mr. H. A. James.

Distribution.—The greater part of North America westward of the Missouri, extending from British Columbia to California. There are several local races, among which the South Californian *M. hemionus peninsulae* is one of the smallest.

| Length on out- side curve. | Circum- ference. | Tip to Tip. | Widest inside. | Points. | Locality. | Owner. |
|-------------------------------------|---------------------|------------------|-------------------|---------|----------------|--------------------|
| -33 $\frac{3}{4}$ | ... | ... | 36 $\frac{1}{2}$ | 5+4 | Colorado . . . | F. Hart. |
| -32 | 6 | 26 | ... | 21+19 | Wyoming . . . | C. R. F. Lutwidge. |
| 30 $\frac{5}{8}$ | 5 $\frac{3}{4}$ | 18 $\frac{3}{4}$ | 24 $\frac{1}{2}$ | 5+5 | ? . . . | W. Moat. |
| -30 $\frac{1}{4}$ | 6 $\frac{1}{2}$ | 18 $\frac{1}{4}$ | 30 | 12+11 | Alberta . . . | N. J. Dinnen. |

- Owner's measurements.

| Length on out- side curve. | Circum- ference. | Tip to Tip. | Widest inside. | Points. | Locality. | Owner. |
|-------------------------------------|---------------------|------------------|-------------------|---------|--------------------------|----------------------------|
| 30 | 5 $\frac{3}{4}$ | ... | 41 | 17 | White River, Colorado | H. A. James. |
| 29 | 6 $\frac{1}{2}$ | 29 $\frac{1}{2}$ | ... | 8+6 | Montana | E. S. Cameron. |
| 28 $\frac{5}{8}$ | 4 $\frac{1}{2}$ | 13 $\frac{1}{4}$ | 17 $\frac{3}{4}$ | 5+5 | Wyoming | Ford G. Barclay. |
| 28 $\frac{1}{2}$ | 5 | 18 $\frac{3}{4}$ | 21 | 6+4 | British Columbia | J. McI. McIver Campbell. |
| 28 $\frac{1}{2}$ | ... | ... | 24 $\frac{1}{2}$ | ... | White River | Major Maitland Kirwan. |
| 28 | 5 | 20 | 23 $\frac{1}{4}$ | 7+6 | Wyoming | J. Hall. |
| 28 | 4 $\frac{1}{4}$ | 22 $\frac{1}{2}$ | 24 $\frac{3}{4}$ | 6+6 | Do. | H. A. C. Darley. |
| 27 $\frac{1}{2}$ | 5 $\frac{3}{4}$ | 14 $\frac{3}{8}$ | 24 $\frac{1}{2}$ | 6+5 | British Columbia | Hon. Walter Rothschild. |
| 27 $\frac{1}{2}$ | 5 $\frac{5}{8}$ | 20 $\frac{3}{8}$ | 29 $\frac{3}{4}$ | 8+6 | Idaho | W. T. Hornaday. |
| 27 $\frac{1}{4}$ | 5 | 14 $\frac{1}{2}$ | 24 $\frac{3}{4}$ | 6+5 | British Columbia | C. W. Janson. |
| 27 $\frac{1}{4}$ | 4 $\frac{1}{4}$ | 15 $\frac{1}{4}$ | 26 $\frac{1}{4}$ | 5+5 | North America | T. L. Fisher. |
| 27 | 5 $\frac{1}{4}$ | 19 $\frac{1}{2}$ | 21 $\frac{3}{8}$ | 6+5 | Do. | Sir Edmund G. Loder, Bart. |
| 27 | 5 $\frac{1}{4}$ | 19 $\frac{1}{2}$ | 22 $\frac{3}{4}$ | 5+5 | British Columbia | D. H. Crake. |
| 26 $\frac{7}{8}$ | 5 | ... | ... | 28 | North Dakota | Theodore Roosevelt. |
| 26 $\frac{3}{4}$ | 4 $\frac{3}{4}$ | 19 $\frac{5}{8}$ | 20 $\frac{1}{8}$ | 5+5 | Wyoming | Ernest Farquhar. |
| 26 $\frac{1}{2}$ | 5 | 15 $\frac{1}{2}$ | 18 $\frac{1}{2}$ | 6+5 | British Columbia | T. P. Kempson. |
| 26 $\frac{1}{2}$ | 5 $\frac{3}{4}$ | ... | 17 $\frac{1}{2}$ | 12 | Wyoming | Hon. F. Thellusson. |
| 26 | 5 | 15 $\frac{1}{4}$ | 19 $\frac{1}{2}$ | 4+4 | British Columbia | J. V. Colby. |
| 25 $\frac{1}{2}$ | 4 $\frac{1}{2}$ | 12 $\frac{3}{4}$ | 16 $\frac{3}{4}$ | 5+5 | Sierra Nevada | P. Grace. |
| 25 $\frac{1}{2}$ | 5 $\frac{1}{2}$ | ... | 21 $\frac{1}{2}$ | 8 | British Columbia | Sir Peter Walker, Bart. |
| 25 $\frac{1}{2}$ | 4 $\frac{1}{4}$ | 27 | 29 | 5+5 | Wyoming | Major G. J. Fitzgerald. |
| 25 $\frac{3}{8}$ | 4 $\frac{1}{8}$ | 19 | 20 | 5+5 | Do. | A. H. Pollen. |
| 25 | 5 $\frac{1}{4}$ | 27 $\frac{3}{8}$ | 27 $\frac{3}{8}$ | 16+13 | Montana | Earl of Lonsdale. |
| 25 | 6 | 18 $\frac{1}{2}$ | 22 $\frac{3}{4}$ | 6+7 | Do. | J. Hall. |
| 25 | 5 | 20 $\frac{3}{4}$ | 24 | 5+5 | Wyoming | J. L. Scarlett. |
| 25 | 5 | 10 | 16 $\frac{3}{4}$ | 5+4 | Do. | F. C. Selous. |
| 24 $\frac{7}{8}$ | 5 | 20 $\frac{1}{8}$ | ... | 6+6 | Do. | Dr. Albert von Stephani. |
| 24 $\frac{1}{2}$ | 5 $\frac{1}{2}$ | ... | 25 | 10 | Do. | T. W. H. Clarke. |
| 24 $\frac{1}{2}$ | 5 | 13 $\frac{3}{4}$ | ... | 3+3 | British Columbia | H. S. Beall. |
| 24 | 4 $\frac{1}{4}$ | 22 $\frac{3}{4}$ | 24 | 10 | Do. | T. P. A. Holford. |
| 24 | 5 $\frac{1}{2}$ | 24 $\frac{1}{2}$ | 24 $\frac{1}{2}$ | 5+5 | Do. | W. Neilson. |
| 24 | 4 $\frac{1}{4}$ | 19 $\frac{1}{4}$ | 25 $\frac{1}{2}$ | 5+5 | Wyoming | Major J. McCall Maxwell. |
| 24 | 5 | 21 $\frac{3}{4}$ | 21 | 6+5 | Do. | H. B. Tate. |

- Owner's measurements.

The **BLACK-TAILED DEER** (*Mazama* [*Dorcelaphus*] *columbiana*).

(Otherwise *Cariacus columbianus*, or *Odocoileus columbianus*.)

Nearly allied to the mule-deer, but of inferior size, with relatively smaller ears and finer hair ; but specially characterised by the shorter gland and tuft on the hind cannon-bone, and the larger and longer tail, of which the upper surface is black and the lower mostly white.

Distribution.—Western North America, from Alaska, British Columbia, and Vancouver to California. The Alaskan race (*M. c. sitkensis*) has the upper surface of the base of the tail coloured like the back ; in the Californian *M. c. scaphiotus* the general colour is paler and the ears are larger.

| Length on out- side curve. | Circum- ference | Tip to Tip. | Widest inside. | Points. | Locality. | Owner. |
|-------------------------------------|--------------------|------------------|-------------------|---------|------------------|---------------------------------|
| 27 $\frac{3}{4}$ | 6 | 15 $\frac{1}{4}$ | 19 $\frac{1}{4}$ | 9+6 | British Columbia | G. Wrey. |
| 27 | 5 $\frac{1}{4}$ | 13 | 20 $\frac{3}{4}$ | 5+5 | ? | R. H. Venables Kyrke. |
| -22 | 4 $\frac{1}{4}$ | ... | ¹ 22 | ... | Vancouver | Clive Phillipps-Wolley. |
| -21 | 5 | 15 $\frac{1}{4}$ | 15 | 5+5 | N.E. California | H. C. Nelson. |
| -20 $\frac{1}{4}$ | 5 | 17 | 17 | 5+7 | Do. | A. E. Leatham. |
| -19 $\frac{1}{2}$ | 5 $\frac{3}{4}$ | ... | 21 | 5+5 | ? | Sir W. Gordon Cumming, Bart. |
| 19 $\frac{1}{4}$ | 4 $\frac{1}{4}$ | 14 | 16 $\frac{1}{2}$ | 3+3 | S. California | Sir Victor Brooke's Collection. |
| 16 | 3 $\frac{3}{4}$ | 8 $\frac{1}{2}$ | 14 $\frac{1}{4}$ | 5+3 | British Columbia | W. T. Hornaday. |

- Owner's measurements.

¹ Outside.



Frontlet and Antlers of Marsh-Deer.

The **MARSH-DEER** (*Mazama* [*Blastoceros*] *dichotoma*).

(Otherwise *Cariacus*, or *Blastoceros*, *paludosus*.)

Antlers without a sub-basal snag, forking regularly, with both prongs again dividing, and the upper one usually more complex than the lower. Ears large, with white hair internally. Hair long and coarse, reversed on the withers for a short distance. General colour of upper-parts bright rufous chestnut in summer, browner in winter; legs black from the knees and hocks downward. No gland on hind cannon-bone. Size, approximately that of a red deer. Although ten is the usual number of points, sports are common.

Distribution.—From Brazil to the inner wooded districts of Argentina.

| Length on out- side curve. | Circum- ference. | Tip to Tip. | Widest inside. | Points. | Locality. | Owner. |
|-------------------------------------|---------------------|------------------|-------------------|---------|------------------|------------------------------|
| 25 $\frac{1}{8}$ | 5 | 22 $\frac{1}{4}$ | ... | 6+7 | Paraguay . . | Dr. Albert von Stephani. |
| 25 | 5 $\frac{1}{2}$ | 18 $\frac{3}{4}$ | 21 $\frac{1}{4}$ | 5+4 | Do. . . | Hon. Walter Rothschild. |
| 24 $\frac{1}{2}$ | 5 | 16 | 18 | 5+5 | Do. . . | Admiral Sir William Kennedy. |
| 24 $\frac{1}{2}$ | 6 $\frac{1}{2}$ | 21 | 20 $\frac{1}{2}$ | 6+5 | N. Argentina . . | J. Todd. |
| 23 $\frac{3}{8}$ | 5 $\frac{1}{8}$ | 15 $\frac{3}{4}$ | 16 $\frac{1}{4}$ | 5+4 | Paraguay . . | British Museum. |
| 23 $\frac{1}{4}$ | 6 | ... | 19 $\frac{1}{2}$ | 12 | Do. . . | G. R. Stuart. |

— Owner's measurements.

| Length on out- side curve. | Circum- ference. | Tip to Tip. | Widest inside. | Points. | Locality. | Owner. |
|-------------------------------------|---------------------|------------------|-------------------|---------|----------------|---------------------------------|
| 22 $\frac{3}{4}$ | 5 $\frac{5}{8}$ | 17 $\frac{1}{2}$ | 18 $\frac{3}{4}$ | 7+6 | Paraguay . . | Hon. Walter Rothschild. |
| 22 $\frac{5}{8}$ | 6 $\frac{1}{4}$ | 20 | 20 $\frac{1}{2}$ | 5+5 | Brazil . . | Sir Victor Brooke's Collection. |
| -22 $\frac{1}{2}$ | 7 $\frac{1}{2}$ | ... | 15 $\frac{1}{4}$ | 6+6 | Argentina . . | Kenyon Slaney. |
| -22 $\frac{1}{4}$ | 6 $\frac{7}{8}$ | 26 | 25 | 5+5 | Do. . . | Sir Edward G. Loder, Bart. |
| 22 $\frac{3}{8}$ | 5 $\frac{1}{2}$ | 25 | ... | 28 | Do. . . | A. Vans-Agnew. |
| 21 $\frac{1}{2}$ | 5 $\frac{1}{2}$ | 22 | 16 $\frac{1}{2}$ | 6+6 | Paraguay . . | S. Pulley. |
| 21 $\frac{1}{2}$ | 6 | 13 $\frac{1}{2}$ | ... | 4+4 | Do. . . | H.R.H. the Duc de Montpensier. |
| 21 $\frac{1}{2}$ | 5 | 12 $\frac{3}{4}$ | 16 | 5+5 | Do. . . | Admiral Sir William Kennedy. |
| -21 $\frac{1}{8}$ | ... | 19 $\frac{3}{4}$ | ... | 6+5 | Entre Rios . . | T. Taylor. |
| 20 | 5 $\frac{1}{2}$ | 20 | ... | 4+4 | Paraguay . . | Count Henry Coudenhove. |
| -20 | 6 $\frac{3}{8}$ | 19 $\frac{1}{4}$ | 18 $\frac{3}{4}$ | 4+4 | Uruguay . . | Surgeon J. Dowson, R.N. |
| 19 $\frac{3}{8}$ | 6 | 20 $\frac{1}{2}$ | 20 | 3+3 | Paraguay . . | R. A. Cooper. |

- Owner's measurements.



Skull and horns of Chilian Guemal, shot in Patagonia by Mr. H. Hesketh Prichard.

The PAMPAS DEER (*Mazama* [*Blastoceros*] *bezoartica*).

(Otherwise *Cariacus*, or *Blastoceros*, *campestris*.)

A small deer nearly allied to the last, but with the front prong of the antlers simple, and the hind one divided. A whorl in the hair on the middle of the back and another at the base of the neck, so that the hair of the withers is directed forwards for a considerable distance. Colour of upper-parts light reddish brown, under-parts and lower surface of tail white; upper surface of latter black. Height at shoulder, 30 inches.

Distribution.—Brazil to Northern Patagonia, in open districts.

| Length on outside curve. | Circum- ference. | Tip to Tip. | Points. | Locality. | Owner. |
|--------------------------------|---------------------|------------------|---------|--------------|------------------------------|
| 14 $\frac{5}{8}$ | 2 $\frac{5}{8}$ | 13 $\frac{1}{4}$ | 3+3 | Argentina | British Museum. |
| 14 $\frac{1}{2}$ | 3 | 10 $\frac{3}{4}$ | 3+3 | Do. | E. M. Crosfield. |
| 14 $\frac{1}{4}$ | 3 | 11 | 3+3 | ? | Sir Edmund G. Loder, Bart. |
| 14 | 4 $\frac{1}{4}$ | 11 $\frac{1}{4}$ | 3+3 | Paraguay | Admiral Sir William Kennedy. |
| 13 $\frac{1}{2}$ | 4 $\frac{3}{4}$ | 8 | 3+3 | Do. | R. A. Cooper. |
| 13 | 2 $\frac{1}{2}$ | 12 $\frac{3}{8}$ | 3+3 | ? | W. Livingstone Learmonth. |
| -13 | 2 $\frac{3}{4}$ | 11 | 3+3 | ? | J. Whitaker. |
| -12 $\frac{5}{8}$ | 2 $\frac{1}{2}$ | 12 $\frac{1}{2}$ | 3+3 | Uruguay | T. H. Clarke. |
| -12 $\frac{1}{2}$ | 4 | 10 $\frac{1}{2}$ | 3+3 | N. Argentina | J. Todd. |

The PERUVIAN GUEMAL (*Mazama* [*Xenelaphus*] *antisiensis*).

(Otherwise *Xenelaphus*, or *Hippocamelus*, *antisiensis*.)

Together with the closely allied Chilean guemal, this species constitutes a group of deer characterised by the antlers forming a single fork. There is no gland-tuft on the hind cannon-bone, the short tail is rather bushy, and the hair coarse and brittle.

Distribution.—The high Andes, from Peru to Northern Chili.

| Length on outside curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|-----------------------------------|---------------------|-----------------|---------------------|------------------------------|
| 11 $\frac{3}{4}$ | 4 $\frac{3}{4}$ | 6 | Bolivia, 13,000 ft. | A. V. Hardy. |
| 10 | 3 $\frac{5}{8}$ | 8 | Ecuador | Hon. Walter Rothschild. |
| 9 $\frac{1}{2}$ | 7 $\frac{5}{8}$ | 4 $\frac{5}{8}$ | Tinta, South Peru | British Museum (H. Whitely). |
| -5 $\frac{1}{2}$ | 2 | 3 $\frac{3}{4}$ | N. Argentina | J. Todd. |
| -4 $\frac{3}{8}$ | 1 $\frac{5}{4}$ | 2 | Rio Grande del Sot | Sir Edmund G. Loder, Bart. |

- Owner's measurements.

The **CHILIAN GUEMAL** (*Mazama* [*Xenelaphus*] *bisulca*).

Distinguished from the last by its superior size (shoulder-height $39\frac{1}{2}$ inches) and more uniform colouring, as well as by several details connected with the latter.

Distribution.—From the Chilian Andes to the plains of Patagonia.

| Length on outside curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|-----------------------------------|---------------------|----------------|-------------------|-------------------------------|
| $11\frac{3}{4}$ | $3\frac{7}{8}$ | $9\frac{1}{2}$ | Patagonia | H. Hesketh Prichard. |
| $4\frac{5}{8}$ | $1\frac{7}{8}$ | $4\frac{1}{2}$ | Chili | American National Collection. |

The **WOOD-BROCKET** (*Mazama nemorivaga*).

(Otherwise *Coassus nemorivaga*.)

The brockets are some of the smallest deer included in the genus *Mazama*, of which they are the typical representatives. They are recognisable by their simple spike-like antlers, the tufted crown of the head, and the radiation of the hair of the face from two whorls, which causes that on the nose to be directed downwards. The present species is distinguished by its small size (height at shoulder about 19 inches), its pale pepper-and-salt brownish or grey colour, the streak on the forehead, and the absence of a gland and tuft on the hock.

Distribution.—Guiana, Colombia, Bolivia, Brazil, and Trinidad.

| Length on front of horn. | Girth. | Tip to Tip. | Locality. | Owner. |
|-----------------------------------|----------------|----------------|------------------|--------------------------|
| $4\frac{5}{8}$ | $3\frac{3}{4}$ | 4 | Trinidad | Dr. Percy Rendall. |
| 3 | $2\frac{1}{4}$ | 2 | Do. | Dr. Albert von Stephani. |

— Owner's measurements.



Head of Musk-Deer.

The **MUSK-DEER**, or **KASTURA** (*Moschus moschiferus*).

She-lu, Chinese. *Kastura*, Kashmiri.

From all living deer except the Chinese water-deer this species is distinguished by the absence of antlers, whose function as weapons is discharged in the male by long upper tusks. The tail is rudimentary and the fur coarse and brittle, while the lateral hoofs are very large. The males have a glandular pouch which secretes the musk from which the species takes its name. Height at shoulder about 20 inches, at rump 22 inches. *Distribution*.—The forest-districts of the Himalaya as far west as Gilgit, at elevations of 8000 feet or more in summer, to Tibet, Siberia, Western China, and Amurland.

| Length of Tusk on outside curve. | Locality. | Owner. |
|-------------------------------------|------------------------|----------------------------|
| 4 exposed from gum | Kashmir | Major H. C. Tytler. |
| -4 | Ta Chin lu | M. Mitchell. |
| 3 $\frac{3}{4}$ | Gurhwal | Capt. G. W. Burton. |
| -3 $\frac{1}{4}$ | Do. | Dr. Albert von Stephani. |
| -3 $\frac{3}{8}$ | Chitral | J. T. H. Lane. |
| 3 | Upper Kumaon | Capt. K. Channer. |
| 3 | Gurhwal | A. O. Hume. |
| 3 | Amurland | British Museum. |
| 2 $\frac{1}{4}$ | Kashmir | Sir Edmund G. Loder, Bart. |

- Owner's measurements.



Skull of Transvaal Giraffe. Presented to the British Museum by Mr. Rowland Ward.

The GIRAFFE (*Giraffa camelopardalis*).

Ihuhla, Swazi.

Indhlulamiti, Zulu.

Tuthla, Basuto.

Luomba ningo, Chilala.

Intutwa, Chila.

Ngabi, Masawara.

Giri, or *Halgiri*, Somali.

Kameel, Boer.

Nyama marakiti, Asenga.

Zaraff, Sudani.

The long limbs and neck, the peculiarly formed head, and the dappled or netted hide, render giraffes distinguishable at a glance from all other living ruminants; with none of which, except the okapi, they have any very close affinity, although their nearest relatives are the deer. So great is their distinctness that, with the okapi, they constitute a family by themselves—the *Giraffidæ*. One of the most marked peculiarities of the giraffes is to be found in the horns, of which the largest pair rise from the head between the ears, and are covered during life with skin. They are never shed; and in the adult are immovably united to the bones of the skull, although separate in young animals. In addition to these, there is a more or less distinct third horn, or boss, situated on the forehead between the eyes, as well as a rudimentary pair at the back of the head, or occiput. Giraffes have a long, extensile tongue, hairy lips, and broad, low-crowned cheek-teeth. There are no tusks in the upper jaw; and in the outermost pair

of lower front teeth the crown, as in the okapi, is double, or bilobed. Lateral hoofs are wanting.

Among the local races of the species, the Nubian giraffe, *G. c. typicus*, is a pale-coloured animal with a large front horn and white legs; and from this the Kordofan *G. c. antiquorum* differs by the smaller and more numerous spots on the upper part of the legs. The Baringo giraffe, *G. c. rothschildi*, is characterised by the black spots of the old



Head of Bull Baringo Giraffe obtained in the Mt. Elgon district by Sir H. H. Johnston, and now in the British Museum. The development of the hindmost horns is very marked.

bulls and the jagged markings of the cows; and the Lado *G. c. cottoni* is allied. The Nigerian *G. c. peralta*, the palest of all, is close to the Nubian. The Congo *G. c. congoensis* combines the presence of a third horn with fully spotted legs; this being also the case with the Kilimanjaro *G. c. tippelskirchi*, in which the markings have an irregular star-like form and the legs are more or less spotted. The races with fully spotted legs and a more or less rudimentary front horn include the Angolan *G. c. angolensis*, the North Transvaal *G. c. wardi*, and the South African *G. c. capensis*.

A.—Northern Races.

| Maximum height. ft. ins. | At shoulder. ft. ins. | Locality. | Owner. |
|-----------------------------|--------------------------|---------------------------|--|
| ♂ -18 6 | ... | British East Africa . . . | J. Hall. |
| ♂ -17 3 | 10 11 | Do. . . . | Major P. H. G. Powell-Cotton. |
| ♂ -17 3 | ... | Do. . . . | Lady Hindlip. |
| ♂ -16 0 | ... | East Central Africa . . . | The late A. H. Neumann. |
| ♀ -13 10 | 8 9½ | British East Africa . . . | British Museum (Major P. H. G. Powell-Cotton). |

B.—Southern and other Races.

| Maximum height. ft. ins. | At shoulder. ft. ins. | Locality. | Owner. |
|-----------------------------|--------------------------|---------------------------|--|
| ♂ -18 7 | ... | South-East Africa . . . | F. Vaughan Kirby. |
| ♂ -18 4 | ... | Angola | Hon. Walter Rothschild. |
| ♂ -18 0 | 12 0 | South Africa | The late Sir W. Cornwallis Harris. |
| ♂ -17 3 | 10 11 | British East Africa . . . | British Museum (Major P. H. G. Powell-Cotton). |
| ♂ -17 0 | ... | W. Matabililand . . . | F. C. Selous. |
| ♀ -16 10 | ... | North Kalahari . . . | H. A. Bryden. |
| ♂ -16 4 | 11 0 | N. Nigeria | The late Capt. G. B. Gosling. |
| ♀ -15 6 to 16 0 | Average height | South-East Africa . . . | F. Vaughan Kirby. |

— Owner's measurements.

The SOMALI GIRAFFE (*Giraffa reticulata*).

The Somali giraffe (for which the name netted giraffe would be appropriate, were it not that it has a double signification) may be described as a dull, liver-coloured animal with a coarse network of narrow white lines dividing the ground-colour into a number of large, irregularly quadrangular and sharply defined patches. The head and upper part of the neck are, however, spotted, while the ears and the legs from the knees and hocks downwards are white. In old bulls the five horns are well developed, although the hind pair is somewhat less conspicuous than in the Baringo race of the typical species.

Apparently this type of colouring is specially adapted for rendering the animal inconspicuous when in covert.



Head of Prongbuck.

The PRONGBUCK or PRONG-HORN (*Antilocapra americana*).

Although commonly termed an antelope, this ruminant differs from all the members of the *Bovidae* by the forking of the horns. These are annually shed from their bony sheaths and replaced by a new pair, which commence to grow up beneath the old ones before they are cast off. In consequence of this, the species is generally regarded as representing a family (*Antilocapridæ*) by itself. Horns absent or rudimentary in the female. Ears long and pointed, tail short, and neck maned. General colour chestnut, with a white rump-patch, and white bars on the throat. Height at shoulder, 36 inches; weight, 70 to 80 lbs. clean.

Distribution.—Western North America, from British Columbia to Mexico.

| Length on outside curve. | Circum- ference. | Tip to Tip. | Widest inside. | Locality. | Owner. |
|-----------------------------------|---------------------|----------------|-------------------|-------------------|---------------------|
| -19½ | 7½ | 5½ | | ? | Evan E. Anderson. |
| -17¼ | 6½ | ... | 9 | N.W. Canada . . . | J. Whitaker. |
| -17 | ... | ... | 20 outside | ? | The late Otho Shaw. |
| -17 | ... | 17½ | ... | Wyoming . . . | J. G. Millais. |

- Owner's measurements.

| Length on outside curve. | Circum- ference. | Tip to Tip. | Widest inside. | Locality. | Owner. |
|-----------------------------------|---------------------|----------------|-------------------|-----------------------------------|---------------------------------------|
| 16 | 6½ | ... | ... | N. Dakota | Theodore Roosevelt. |
| 16 | 5½ | 12 | ... | Wyoming | J. M. Geddes. |
| 15¾ | 6½ | 5½ | ... | Do. | St. George Littledale. |
| 15¾ | 6½ | 8½ | ... | Do. | P. B. Vander Byl. |
| 15¾ | 5½ | ... | 20 outside | ? | The late Otho Shaw. |
| 15¾ | 6 | 2½ | ... | Teton Mountains | Sir H. Lennard. |
| 15½ | 4½ | 9½ | ... | Wyoming | W. R. Cookson. |
| 15½ | 5½ | 2½ | ... | N.W. Territories | N. J. Dinnen. |
| 15½ | 5½ | 6½ | ... | Wyoming | Count E. Hoyos. |
| 15½ | 6½ | 7½ | ... | ? | Col. Ralph Vivian. |
| 15 | 5½ | 1 | ... | Wyoming | Sutton Timmis. |
| 15 | 6 | ... | ... | Do. | H.R.H. the Duc d'Orléans. |
| 15 | 5½ | 5½ | 10½ | Do. | St. George Littledale. |
| 15 | 5½ | 7½ | ... | Do. | Isaac Bell. |
| 14½ | 5½ | 7½ | ... | Do. | Capt. H. Holmes Tarn. |
| 14½ | 5½ | 12 | ... | ? | C. F. Bengough. |
| 14½ | ... | ... | 12½ | Wyoming | T. W. H. Clarke. |
| 14½ | 6 | ... | 9½ | Laramie Plains, Wyoming | Ford G. Barclay. |
| 14½ | 6½ | 5½ | ... | Wyoming | The late Lieut.-Col. Hon. W. Coke. |
| 14½ | 6 | 6 | ... | Alberta | F. I. Mitchell. |
| 14½ | 5½ | 15½ | ... | Colorado | Rev. Dr. R. J. Nevin. |
| 14½ | 5½ | 5½ | ... | Do. | F. Gillett. |
| 14½ | 6½ | 8½ | ... | Wyoming | Sir Edmund G. Loder, Bart. |
| 14½ | 5½ | 6½ | 10 | Do. | Count Scheibler. |
| 14½ | 6 | 2½ | ... | ? | Sir Victor Brooke's Collec- tion. |
| 14½ | 7 | 4½ | ... | ? | J. McI. M'Iver Campbell. |
| 14½ | 5½ | 5½ | ... | Wyoming | Major A. J. Carstairs. |
| 14½ | 5½ | 5½ | ... | Do. | Earl of Dartmouth. |

- Owner's measurements.



Horns of Bubal Hartebeest. From Mr. Abe Bailey's specimen.

The BUBAL HARTEBEEEST (*Bubalis boselaphus*).

This species commences the family of hollow-horned ruminants. *Bovidæ*, in which the horns are in the form of unbranched hollow sheaths supported on bony cores and carried permanently. The hartebeests are large antelopes with naked muzzles, abnormally long faces, doubly-curved horns, small apertures to the face-glands, large valvular nostrils (of which the lower lids are covered with short hairs), long, tufted tails, and large lateral hoofs. Both sexes are horned. The typical hartebeests have a whorl of hair on the forehead, and the hair on the middle line of the face directed downwards below this till a short distance above the nose, when there is another whorl; face-glands large. The present species is the smallest of the group, standing only 43 or 44 inches at the shoulder. It has a short pedicle supporting the horns, which are in the form of the letter U, and the colour is uniform tawny, with the tail-tuft black.

Distribution.—North-west Africa (interior of Morocco, Algeria, and Tunisia).

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|----------------|-------------|----------------------|-----------------|
| 15½ | 8½ | 7¾ | North Africa | British Museum. |
| 13¾ | 9¾ | 9½ | Tunisia | Abe Bailey. |
| 13½ | 8½ | 7¾ | North Africa | British Museum. |



Head of Western Hartbeest.

WESTERN HARTEBEEST (*Bubalis major*).*Kanki*, Hausa.

Apparently related to the preceding species, but larger, with more massive horns, which are more bent near the middle, and have long, smooth tips. Body uniform rufous fawn, varying from deep red almost to fawn-grey, face deep brown, the fore-legs streaked with dark brown or blackish from the knees downwards, and the tail-tuft black. Height at shoulder from about 46 to 54 inches.

Distribution.—Gambia, Lower Nigeria, the interior of the Cameruns, Togoland, etc.

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|------------------|------------------|---------------------|------------------------------------|
| 26 $\frac{3}{4}$ | 13 $\frac{1}{2}$ | 6 $\frac{1}{4}$ | Nigeria . . . | Capt. E. E. Williams. |
| 26 $\frac{1}{8}$ | 13 $\frac{3}{8}$ | 11 | Do. . . . | Sergeant Lefanu. |
| 26 | 12 $\frac{1}{2}$ | 14 $\frac{3}{4}$ | Do. . . . | Lady Constance Stewart-Richardson. |
| 25 $\frac{1}{2}$ | 11 $\frac{3}{4}$ | 12 $\frac{1}{2}$ | Do. . . . | Capt. P. A. Clive. |
| 25 $\frac{1}{2}$ | 12 $\frac{3}{4}$ | 10 | Do. . . . | Capt. C. C. West. |
| 25 $\frac{3}{8}$ | 12 $\frac{5}{8}$ | 11 $\frac{1}{4}$ | Yauri, Hausa States | Major J. W. Carroll. |
| 25 $\frac{1}{4}$ | 12 $\frac{3}{4}$ | 13 $\frac{3}{8}$ | Near Borgu . . . | Capt. N. C. Welch. |
| 25 | 11 $\frac{3}{4}$ | 10 $\frac{1}{4}$ | Benue River . . . | Abe Bailey. |

- Owner's measurements.

RECORDS OF BIG GAME

| Length on front curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|---------------------------|---------------------|-----------------|---------------------|----------------------------------|
| 25 | $11\frac{3}{4}$ | $8\frac{1}{4}$ | Gold Coast . . . | Capt. Montray Read. |
| 25 | $11\frac{1}{4}$ | $16\frac{1}{2}$ | Nigeria . . . | G. B. Scott. |
| $24\frac{3}{4}$ | $13\frac{1}{4}$ | 14 | Do. . . . | Capt. H. T. G. Moore. |
| $24\frac{1}{2}$ | $11\frac{3}{4}$ | $8\frac{3}{4}$ | Do. . . . | Capt. S. B. B. Dyer. |
| -24 | $11\frac{1}{2}$ | 12 | Togoland . . . | Berlin Museum. |
| 24 | 12 | $5\frac{3}{4}$ | Nigeria . . . | Dr. W. H. Langley. |
| 24 | $11\frac{1}{2}$ | $8\frac{1}{4}$ | Do. . . . | K. V. Elphinstone. |
| 24 | 12 | 11 | Do. . . . | A. Noel Woods. |
| 24 | $12\frac{1}{4}$ | 6 | Do. . . . | S. C. Peck. |
| 24 | $12\frac{1}{4}$ | $8\frac{1}{2}$ | Do. . . . | G. F. Lobb. |
| 24 | 11 | $10\frac{3}{4}$ | Do. . . . | Capt. W. D. Wright. |
| $23\frac{3}{4}$ | $12\frac{1}{2}$ | $6\frac{3}{4}$ | Do. . . . | Capt. H. N. Kempthorne. |
| $23\frac{3}{4}$ | $12\frac{1}{2}$ | 11 | Do. . . . | Capt. G. C. Kelly. |
| $23\frac{1}{2}$ | 12 | 9 | Do. . . . | Brig.-Gen. P. S. Wilkinson. |
| $23\frac{1}{2}$ | 12 | 11 | Do. . . . | F. R. O'Neill. |
| $23\frac{1}{2}$ | 12 | $4\frac{1}{4}$ | Ashanti . . . | C. Beddington. |
| $23\frac{1}{2}$ | 12 | $13\frac{1}{2}$ | N. of Benue River . | W. H. Broun. |
| $23\frac{1}{2}$ | $11\frac{1}{2}$ | $4\frac{3}{4}$ | N. Nigeria . . . | D. Hay Thorburn. |
| $23\frac{1}{4}$ | $12\frac{1}{4}$ | 14 | Do. . . . | Major D. F. MacCarthy Morrogh. |
| $23\frac{1}{4}$ | $12\frac{1}{2}$ | $8\frac{1}{2}$ | Nigeria . . . | Major G. F. Phillips. |
| $23\frac{1}{4}$ | $12\frac{3}{4}$ | $12\frac{1}{2}$ | Lagos | Capt. W. A. Ross. |
| $23\frac{1}{4}$ | $12\frac{1}{2}$ | 11 | Nigeria . . . | Sir Edmund G. Loder, Bart. |
| 23 | $12\frac{1}{4}$ | $9\frac{1}{4}$ | Nigerian Sudan . . | Hon. Walter Rothschild. |
| 23 | $11\frac{1}{2}$ | $9\frac{1}{4}$ | Nigeria . . . | A. A. Smith. |
| 23 | 12 | $9\frac{1}{2}$ | Do. . . . | Capt. H. A. Porter. |
| 23 | 12 | 7 | Do. . . . | N. F. Baynes. |
| $22\frac{1}{2}$ | 12 | 9 | Gold Coast . . . | Capt. G. H. Hastings. |
| ♀ -20 $\frac{3}{4}$ | ... | $8\frac{3}{4}$ | Lokoja | The late Capt. C. A. Booth. |
| ♀ 20 $\frac{1}{2}$ | $9\frac{1}{4}$ | 9 | Do. . . . | Sir E. Stewart-Richardson, Bart. |
| ♀ 20 $\frac{1}{2}$ | $8\frac{3}{4}$ | 8 | Do. . . . | A. C. Aubin. |

- Owner's measurements.



Head of Tora Hartbeest.

TORA HARTEBEEST (*Bubalis tora*).*Worobo*, Abyssinian.*Tora*, Sudani.

Horn-pedicle of medium length, the horns themselves in the form of an inverted bracket (—). Height at shoulder from 48 to 54 inches. Colour uniformly pale tawny fulvous, with the exception of the tail-tuft and chin, which are black. Although of the same uniform colour, this species is easily distinguished from *B. boselaphus* by its superior size and differently shaped horns. Weight from 300 to 400 lbs.

Distribution.—Abyssinia and south and middle portion of Blue Nile.

The Blue Nile *B. t. rahatensis* has the horn-tips markedly inclined inwards.

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|----------------|-------------|---------------|-----------------------------|
| 22½ | 9 | 22¾ | Sudan | Carl Hagenbeck. |
| 22 | 9¼ | 10 | Do. | Capt. Lord J. S. Cavendish. |
| 21½ | 10 | 10¾ | Do. | C. Bower Ismay. |
| 20¾ | 9¼ | 14½ | Do. | Hon. Walter Rothschild. |
| 20¾ | 9½ | 13¼ | Do. | Sir Edmund G. Loder, Bart. |
| 20¾ | 10 | 12½ | Do. | Douglas M'Douall. |
| 20½ | 9½ | 16¾ | Do. | Marquis Pizzardi. |

RECORDS OF BIG GAME

| Length on front curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|------------------------------|---------------------|------------------|------------------------|-------------------------------|
| 20 $\frac{1}{2}$ | 10 $\frac{1}{4}$ | 17 | Sudan | Abe Bailey. |
| 20 $\frac{1}{4}$ | 9 | 9 $\frac{1}{2}$ | Do. | Col. A. Colville. |
| 20 | 10 $\frac{3}{4}$ | 16 $\frac{3}{4}$ | Do. | Major H. H. S. Morant. |
| 20 | 9 $\frac{5}{8}$ | 15 $\frac{5}{8}$ | Do. | British Museum. |
| 20 | 9 $\frac{1}{2}$ | 14 $\frac{3}{4}$ | Lake Zuay, Abyssinia . | Prince de Lucinge. |
| 19 $\frac{3}{4}$ | 9 $\frac{1}{2}$ | 13 $\frac{1}{2}$ | Dinder Valley . . . | Major C. P. B. Wood. |
| 19 $\frac{3}{4}$ | 9 $\frac{1}{2}$ | 11 $\frac{1}{2}$ | Do. | Lord Villiers. |
| 19 $\frac{3}{4}$ | 9 | 16 $\frac{1}{8}$ | Dombelas, Abyssinia . | British Museum. |
| ♀ 19 $\frac{3}{4}$ | 8 | 15 | Setit Valley | H. Leney. |
| 19 $\frac{5}{8}$ | 10 $\frac{1}{8}$ | 12 $\frac{5}{8}$ | Abyssinia | Major P. H. G. Powell-Cotton. |
| 19 $\frac{1}{2}$ | 8 $\frac{3}{4}$ | 17 $\frac{3}{4}$ | Sudan | Capt. J. C. Graham. |
| 19 $\frac{1}{2}$ | 9 | 11 $\frac{1}{2}$ | Setit Valley | Countess of Sefton. |
| 19 $\frac{1}{4}$ | 9 $\frac{1}{2}$ | 11 $\frac{1}{4}$ | Blue Nile | G. L. Harrison. |
| ♀ 19 | 7 $\frac{1}{2}$ | 18 $\frac{1}{2}$ | Setit Valley | Earl of Sefton. |
| ♀ 19 | 9 | 14 | Dinder Valley . . . | Douglas M'Douall. |
| ♀ 19 | 8 $\frac{3}{4}$ | 7 $\frac{1}{2}$ | Do. | C. E. Russell. |



Head of Swayne's Hartbeest. Shot by Col. H. G. C. Swayne.

The SIG or SWAYNE'S HARTEBEEST (*Bubalis swaynei*).

Sig, Somali. *Korkei*, Galla.

Horn-pedicle and horns of the same general type as in the tora. Height at shoulder about 47 inches; weight about 300 lbs. General colour pale reddish chocolate-brown, with white tips to the hairs; face black, except the muzzle and a line between the eyes which, like the shoulders and upper part of fore-legs, as well as a patch on the upper part of the hind-legs, are black.

Distribution.—Interior of Somaliland and Shoa; in Somaliland on the dry plateau known as the *Haud*. The East Somali *B. s. noacki* is redder, with the face inconspicuous and less defined.

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|-----------------|------------------|----------------|-----------------------|
| 20 $\frac{1}{4}$ | 8 $\frac{7}{8}$ | 26 $\frac{3}{4}$ | Somaliland . . | Col. H. G. C. Swayne. |
| 19 $\frac{5}{8}$ | 9 | 27 | Do. . . | C. Bulpett. |
| 19 $\frac{1}{2}$ | 9 $\frac{1}{2}$ | 22 $\frac{1}{2}$ | Do. . . | G. H. Cheetham. |

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|---------------------------|------------------|------------------|-----------------|-------------------------------|
| 19 $\frac{1}{4}$ | 10 $\frac{1}{4}$ | 29 | Somaliland . . | Abe Bailey. |
| -19 $\frac{1}{4}$ | ... | 24 $\frac{1}{4}$ | N. Somaliland . | J. Menges. |
| -19 $\frac{1}{4}$ | ... | 16 $\frac{1}{2}$ | Somaliland . . | D. D. Haskard. |
| 19 $\frac{1}{4}$ | 10 | 21 $\frac{5}{8}$ | Do. . . | H. A. Bryden. |
| 19 | 10 | 23 $\frac{1}{4}$ | N. Somaliland . | A. E. Butter. |
| -19 | 9 $\frac{1}{4}$ | 18 $\frac{1}{4}$ | Do. . . | Capt. M. M'Neill. |
| 18 $\frac{3}{4}$ | 9 | 21 $\frac{1}{4}$ | Somaliland . . | Major R. P. Cobbold. |
| 18 $\frac{3}{4}$ | 9 $\frac{1}{4}$ | 16 | Do. . . | Ford G. Barclay. |
| 18 $\frac{1}{2}$ | 9 $\frac{1}{4}$ | 19 $\frac{1}{4}$ | Do. . . | Capt. T. W. Greenfield. |
| 18 $\frac{3}{8}$ | 8 $\frac{3}{4}$ | 18 | Do. . . | Col. H. G. C. Swayne. |
| 18 $\frac{1}{4}$ | 10 $\frac{1}{4}$ | 22 $\frac{1}{2}$ | Do. . . | T. Morse. |
| 18 $\frac{1}{5}$ | 9 | 17 $\frac{1}{4}$ | Do. . . | Norman B. Smith. |
| 18 | 8 $\frac{3}{4}$ | 10 $\frac{3}{4}$ | Do. . . | Count J. Potocki. |
| 18 | 9 $\frac{1}{2}$ | 20 | Do. . . | W. F. Whitehouse. |
| 18 | 9 | 22 | Do. . . | Capt. B. R. M. Glossop. |
| 17 $\frac{3}{4}$ | 11 | 17 | Gallaland . . | Viscount Edmond de Poncins. |
| 17 $\frac{3}{4}$ | 8 $\frac{3}{4}$ | 21 | Somaliland . . | The late Count J. de Bylandt. |
| 17 $\frac{3}{4}$ | 10 | 21 $\frac{1}{2}$ | Do. . . | E. Lee Townshend. |
| 17 $\frac{3}{4}$ | 10 | 20 | Do. . . | Digby Davies. |
| -17 $\frac{1}{2}$ | 9 $\frac{1}{4}$ | 19 | Do. . . | Sir Edmund G. Loder, Bart. |
| 17 $\frac{1}{2}$ | 9 | 18 $\frac{3}{4}$ | Abyssinia . . | I. Buxton. |
| ♀ 15 $\frac{1}{2}$ | 7 | 11 $\frac{1}{8}$ | Gallaland . . | Viscount Edmond de Poncins. |

- Owner's measurements.



Head of Kongoni.

The **KONGONI** or **COKE'S HARTEBEEST** (*Bubalis cokei*).

Horn-pedicle moderate ; horns bracket-shaped, very short and thick. Height at shoulder 48 or 49 inches. Weight about 300 lbs. General colour uniform bright fawn, with the lower lip somewhat browner, and the lower part of the rump paler ; tail long, with the black tuft ascending some way up the hind surface.

Distribution.—Eastern Africa, from Usagara northwards to Kilimanjaro, Masailand, and probably Lake Rudolf.

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|----------------|-------------|---------------------|-------------------------------|
| 21 | 9 | 13½ | East Africa | Capt. M. L. Pears. |
| 20½ | ... | ... | Do. | Abe Bailey. |
| 20 | 9 | 13½ | Do. | Capt. R. Meinertzhagen. |
| 19½ | 10½ | 13 | Do. | The Master of Belhaven. |
| 19½ | 10 | 18¾ | Do. | J. Gardiner Muir. |
| 19½ | 10 | 17¾ | Do. | Major J. A. Hannynnton. |
| 19½ | 10 | 16 | Do. | R. Wahrmann. |
| 19½ | 10½ | 10½ | Do. | Major P. H. G. Powell-Cotton. |
| 19½ | 9¾ | 16 | Do. | Lieut.-Col. E. G. Harrison. |
| 19 | 10 | 15½ | Do. | A. Vonwiller. |

— Owner's measurements.

| Length on front curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|------------------------------|---------------------|------------------|---------------------|---------------------------|
| 19 | 10 $\frac{1}{4}$ | 12 | East Africa | W. F. Wailes-Fairbairn. |
| 19 | 9 $\frac{3}{4}$ | 16 | Do. | Sir Robert Harvey, Bart. |
| 19 | 9 $\frac{3}{4}$ | 15 | Do. | R. J. Cuninghame. |
| 19 | 9 | 15 $\frac{3}{4}$ | Do. | F. W. Belt. |
| 19 | 9 $\frac{1}{2}$ | 16 | Do. | J. Anstruther. |
| 18 $\frac{3}{4}$ | 9 $\frac{1}{4}$ | 14 $\frac{1}{4}$ | Do. | C. B. C. Storey. |
| 18 $\frac{3}{4}$ | 10 | 14 $\frac{3}{4}$ | Do. | H. Sampson. |
| 18 $\frac{3}{4}$ | 10 $\frac{1}{2}$ | 12 $\frac{3}{8}$ | Do. | A. G. Murray Smith. |
| 18 $\frac{3}{4}$ | 10 $\frac{1}{2}$ | 12 $\frac{1}{2}$ | Do. | Duke of Alba. |
| 18 $\frac{3}{4}$ | 10 | 10 $\frac{1}{2}$ | Do. | C. C. Wilson. |
| 18 $\frac{3}{4}$ | 10 | 11 $\frac{1}{4}$ | Do. | Dr. A. E. Herz. |
| 18 $\frac{1}{4}$ | 10 $\frac{1}{2}$ | 19 | Do. | H. Fowler. |
| 18 $\frac{5}{8}$ | 8 $\frac{7}{8}$ | 16 $\frac{1}{4}$ | Do. | F. J. Jackson. |
| 18 $\frac{1}{2}$ | 9 $\frac{1}{2}$ | 13 | Do. | W. G. Niven. |
| 18 $\frac{1}{2}$ | 9 $\frac{1}{2}$ | 15 $\frac{1}{4}$ | Do. | H. G. Watson. |
| 18 $\frac{1}{2}$ | 10 | 13 | Do. | Prince de Caraman Chimay. |
| 18 $\frac{3}{4}$ | 10 $\frac{1}{4}$ | 14 | Do. | J. N. Preston-Whyte. |
| 18 $\frac{1}{4}$ | 10 | 10 $\frac{1}{4}$ | Do. | G. de P. Colville. |
| 18 $\frac{1}{4}$ | 9 $\frac{3}{4}$ | 13 $\frac{3}{4}$ | Do. | Capt. H. C. S. Ashton. |
| 18 $\frac{1}{4}$ | 9 | 12 $\frac{1}{2}$ | Do. | W. F. Cooper. |
| 18 $\frac{1}{4}$ | 9 $\frac{3}{4}$ | 11 | Do. | S. S. Steele. |
| 18 $\frac{1}{4}$ | 9 $\frac{3}{4}$ | 13 $\frac{1}{4}$ | Do. | N. C. Cockburn. |
| 18 $\frac{1}{4}$ | 9 $\frac{3}{4}$ | 13 | Do. | Col. Max C. Fleischmann. |
| 18 $\frac{1}{4}$ | 10 | 15 | Do. | R. B. Seager. |
| 18 $\frac{1}{4}$ | 9 $\frac{1}{4}$ | 13 $\frac{1}{8}$ | Do. | F. C. Selous. |
| 18 | 9 $\frac{1}{2}$ | 13 | Do. | Duke of Peneranda. |
| 18 | 10 $\frac{1}{4}$ | 11 $\frac{1}{2}$ | Do. | C. Bower Ismay. |
| 18 | 10 $\frac{1}{2}$ | 12 $\frac{3}{4}$ | Do. | Sutton Timmis. |
| 18 | 9 $\frac{3}{4}$ | 14 | Do. | G. Henry. |
| 18 | 10 $\frac{1}{4}$ | 16 $\frac{1}{4}$ | Do. | Mrs. A. K. Muir. |
| 18 | 10 | 15 | Do. | H. C. Allfrey. |
| 18 | 9 $\frac{1}{4}$ | 11 $\frac{3}{4}$ | Do. | Hon. Mrs. Blyth. |
| 18 | 10 | 16 $\frac{3}{4}$ | Do. | Col. A. Colville. |
| 18 | 10 $\frac{1}{2}$ | 10 $\frac{1}{2}$ | Do. | Col. J. J. Harrison. |
| ♀ 16 $\frac{1}{4}$ | 7 $\frac{1}{4}$ | 14 $\frac{3}{4}$ | Do. | E. H. Lichfield. |
| ♀ 16 $\frac{1}{4}$ | 8 | 13 $\frac{1}{4}$ | Do. | Stephenson R. Clarke. |



Horns of Cape Hartbeest.

The **CAMA** or **CAPE HARTEBEEST** (*Bubalis cama*).

Kama, Bechuana.

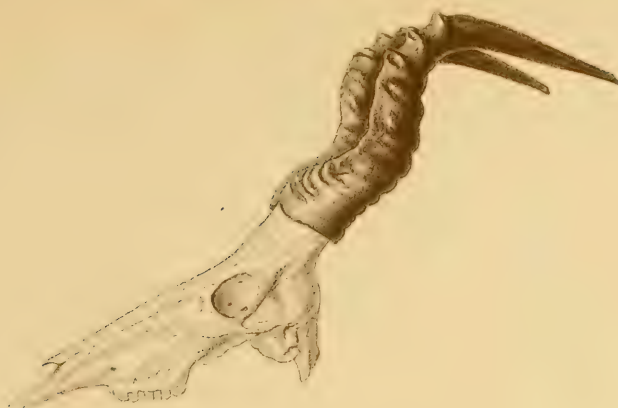
Ingama, Makalaka.

Horn-pedicle greatly elongated ; horns very sharply bent, and forming a letter V when viewed from the front. Height at shoulder from 48 to 54 inches. General colour reddish brown, darker than in any of the preceding ; face (except between the eyes), back of neck, chin, shoulders, thighs, and tail black or blackish ; lower portion of buttocks with a conspicuous whitish or yellowish blaze.

Distribution.—Africa southwards of the Limpopo, but extending farther northwards along the confines of the Kalahari desert. This large and handsome species (the rooi hartebeest) is now nearly exterminated in the Cape, although still found in the Transvaal. A few still linger in the old Bushman country in the north-west of Cape Colony. Although practically exterminated in the Orange River Colony and in most of the Transvaal (except to the north-west), numbers of hartebeest are to be found in the plains and open forest of British Bechuanaland and the Bechuanaland Protectorate. In the North Kalahari and the desert-regions about the Botletli River big troops are to be met with. This hartebeest is remarkably fleet and enduring, and by no means easy to bag. Its flesh is palatable, and its brilliant coat much sought after by the native tribes.

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|------------------|------------------|---------------------|------------------------------------|
| -26 | 11 $\frac{3}{4}$ | 13 | Natal . . . | C. S. Mann. |
| -25 $\frac{3}{4}$ | 12 | 4 | Orange River Colony | Abe Bailey. |
| -25 | 11 $\frac{1}{4}$ | 10 $\frac{1}{2}$ | Do. | Capt. W. Jardine. |
| 25 | 11 | 10 | Do. | C. Rube. |
| -24 $\frac{7}{8}$ | 11 | 7 | Nata River . . | American National Collection. |
| 24 $\frac{3}{4}$ | 10 $\frac{1}{2}$ | 9 $\frac{5}{8}$ | ? | R. T. Coryndon. |
| -24 $\frac{5}{8}$ | 11 $\frac{3}{4}$ | 11 $\frac{1}{8}$ | ? | B. Senior. |
| 24 $\frac{1}{2}$ | 12 | 11 | Near Boshof, O.R.C. | Hon. Walter Rothschild. |
| 24 $\frac{1}{2}$ | 12 | 9 $\frac{1}{2}$ | South Africa . . | C. D. Rudd. |
| 24 $\frac{1}{2}$ | 12 $\frac{1}{2}$ | 10 | Ngamiland . . | F. T. Garbutt. |
| -24 $\frac{1}{2}$ | 11 $\frac{5}{8}$ | 12 | Damaraland . . | Berlin Museum. |
| -24 $\frac{3}{8}$ | 10 $\frac{1}{4}$ | 9 $\frac{3}{10}$ | Do. . . | Th. Rehbock. |
| -24 $\frac{3}{8}$ | 11 | 17 $\frac{5}{8}$ | ? | P. C. Keytel. |
| -24 $\frac{1}{4}$ | 11 | 7 $\frac{7}{8}$ | Orange River Colony | Abe Bailey. |
| -24 | 10 $\frac{1}{2}$ | 8 $\frac{1}{8}$ | Griqualand . . | A. F. Williams. |
| 23 $\frac{3}{4}$ | 10 | 8 $\frac{3}{8}$ | Do. . . | British Museum (Sir Andrew Smith). |
| 23 $\frac{1}{2}$ | 11 $\frac{1}{2}$ | 10 $\frac{1}{2}$ | Kamaland . . | F. C. Selous. |
| 23 $\frac{1}{2}$ | 12 | 6 $\frac{3}{4}$ | ? | J. S. Dawson. |
| -23 $\frac{1}{2}$ | 13 | 5 $\frac{7}{8}$ | ? | Sir Edmund G. Loder, Bart. |
| -23 $\frac{1}{2}$ | 11 | 5 $\frac{1}{2}$ | Kalahari . . . | Dr. Albert von Stephani. |
| 23 $\frac{1}{4}$ | 11 $\frac{1}{4}$ | 16 $\frac{1}{2}$ | ? | W. A. Simpson Hinchliffe. |
| - ♀ 21 $\frac{3}{8}$ | 8 $\frac{1}{2}$ | 13 $\frac{1}{2}$ | Orange River Colony | Abe Bailey. |
| - ♀ 21 | 7 $\frac{1}{2}$ | 15 $\frac{1}{2}$ | Do. | P. C. Keytel. |
| - ♀ 20 | ... | ... | Do. | South African Museum. |

- Owner's measurements.



Skull of Jackson's Lelwel Hartbeest.

The **LELWEL HARTEBEEST** (*Bubalis lelwel*).*Mangazi*, Waganda. *Titel*, Sudani.

Generally similar to the preceding, but with the horns less abruptly bent backwards from above. In the Baringo or Jackson's race, *B. l. jacksoni*, there is no black blaze on the face, and the colour is uniformly foxy red. *B. l. niediecki* of the White Nile differs by the parallel or inward (in place of outward) direction of the horn-tips. *B. l. insignis* of the Albert Nyanza district has a black dorsal stripe and dark markings on the lower part of the legs. Weight about 450 lbs. Height at shoulder about 52 inches.

Distribution.—Typically from the Bahr-el-Ghazal, Upper Nubia, and Kordofan; represented in the interior of British Central Africa, north of Lake Baringo, and Uganda, by *B. l. jacksoni*, to which many of the undermentioned specimens belong.

| Length on front curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|---------------------------------|---------------------|-----------------|---------------------|----------------------|
| 26 | $11\frac{7}{8}$ | $14\frac{7}{8}$ | E. Africa . . . | E. H. Lichfield. |
| 25 $\frac{5}{8}$ | $11\frac{3}{4}$ | $9\frac{1}{8}$ | Nr. Gondokoro . . . | E. T. W. M'Causland. |
| 25 $\frac{3}{4}$ | $11\frac{1}{2}$ | 14 | E. Africa . . . | Capt. H. C. Hart. |
| 25 $\frac{1}{4}$ | $12\frac{1}{2}$ | $7\frac{1}{4}$ | Do. . . . | A. Saunderson. |
| 25 $\frac{1}{4}$ | $11\frac{1}{4}$ | $11\frac{3}{4}$ | Do. . . . | F. C. Selous. |
| 25 $\frac{1}{4}$ | 11 | $14\frac{1}{2}$ | Do. . . . | W. N. McMillan. |
| 25 | $12\frac{1}{4}$ | $12\frac{5}{8}$ | Do. . . . | Duke of Medinaceli. |

- Owner's measurements.

| Length on front curve | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|--------------------------------|---------------------|------------------|----------------------|-------------------------------|
| 25 | 11 $\frac{1}{2}$ | 8 | Sudan | Kenneth Crossley. |
| 25 | 12 $\frac{1}{4}$ | 11 $\frac{1}{2}$ | Uganda | Douglas M'Douall. |
| 25 | 12 | 10 $\frac{3}{4}$ | Do. | Capt. A. W. Jennings Bramly. |
| 24 $\frac{3}{4}$ | 12 | 14 $\frac{1}{4}$ | Do. | Capt. V. C. de Crespigny. |
| 24 $\frac{3}{4}$ | 11 $\frac{1}{2}$ | 13 $\frac{3}{4}$ | Kordofan | C. E. Lyall. |
| 24 $\frac{3}{4}$ | 11 $\frac{1}{2}$ | 11 $\frac{1}{4}$ | Sudan | J. V. Colby. |
| 24 $\frac{3}{4}$ | 11 $\frac{1}{2}$ | 9 $\frac{1}{2}$ | E. Africa | Sutton Timmis. |
| 24 $\frac{1}{2}$ | 12 $\frac{3}{4}$ | 7 $\frac{1}{2}$ | Do. | A. de Rothschild. |
| 24 $\frac{1}{2}$ | 10 $\frac{3}{4}$ | 10 $\frac{1}{4}$ | East Africa | Col. R. Bright. |
| 24 $\frac{1}{2}$ | 11 $\frac{1}{4}$ | 18 $\frac{1}{2}$ | Do. | C. Bower Ismay. |
| 24 $\frac{1}{2}$ | 12 | 8 $\frac{3}{4}$ | Do. | O. Mosley. |
| 24 $\frac{1}{4}$ | 11 | 10 $\frac{5}{8}$ | Do. | A. Vonwiller. |
| 24 | 12 | 8 $\frac{1}{2}$ | Do. | Duke of Alba. |
| 24 | 11 $\frac{1}{8}$ | 10 $\frac{1}{2}$ | Do. | G. Henry. |
| 24 | 11 $\frac{1}{2}$ | 9 | Do. | Capt. H. C. S. Ashton. |
| 23 $\frac{3}{4}$ | 10 $\frac{3}{4}$ | 12 | Do. | Major P. H. G. Powell-Cotton. |
| 23 $\frac{3}{4}$ | 10 $\frac{3}{8}$ | 6 | White Nile | Capt. A. H. Vivian. |
| 23 $\frac{3}{4}$ | 11 $\frac{1}{2}$ | 11 $\frac{5}{8}$ | Do. | Earl of Sefton. |
| 23 $\frac{3}{4}$ | 11 | 12 $\frac{1}{2}$ | East Africa | B. Dominick. |
| 23 $\frac{3}{4}$ | 12 | 11 $\frac{3}{4}$ | Do. | F. Santos Saurez. |
| 23 $\frac{3}{4}$ | 11 $\frac{1}{2}$ | 7 $\frac{1}{4}$ | Do. | Col. Max. C. Fleischmann. |
| 23 $\frac{5}{8}$ | 11 | 13 $\frac{1}{4}$ | Kordofan | Capt. H. S. Hearn. |
| 23 $\frac{1}{2}$ | 12 $\frac{1}{2}$ | 10 $\frac{3}{4}$ | East Africa | Major H. B. Dalgety. |
| 23 $\frac{1}{2}$ | 11 $\frac{1}{2}$ | 11 $\frac{1}{2}$ | Uganda | Capt. P. Garrard. |
| 23 $\frac{1}{2}$ | 12 | 5 $\frac{5}{8}$ | East Africa | R. J. Cuninghame. |
| 23 $\frac{1}{2}$ | 11 $\frac{1}{4}$ | 7 $\frac{3}{4}$ | Do. | N. C. Cockburn. |
| 23 $\frac{1}{4}$ | 12 $\frac{1}{4}$ | 11 $\frac{1}{2}$ | Do. | Stephenson R. Clarke. |
| 23 $\frac{1}{4}$ | 12 $\frac{1}{4}$ | 10 $\frac{1}{4}$ | Do. | H. Sampson. |
| 23 $\frac{1}{4}$ | 12 | 8 $\frac{1}{2}$ | Do. | Mrs. Percy C. Madeira. |
| 23 $\frac{1}{8}$ | 12 | 7 $\frac{1}{2}$ | Do. | A. Fowler. |
| 23 | 12 | 10 | Do. | J. Jay White. |
| 23 | 12 | 10 $\frac{1}{2}$ | Do. | G. F. Phillips. |
| 23 | 12 $\frac{1}{4}$ | 10 | Do. | W. Sewall. |
| 23 | 11 $\frac{1}{4}$ | 10 $\frac{1}{2}$ | Do. | H. S. Keating. |
| 23 | 11 | 8 $\frac{3}{4}$ | Do. | British Museum. |
| 22 $\frac{7}{8}$ | 11 $\frac{3}{8}$ | 10 $\frac{1}{4}$ | Sudan | Capt. P. E. Vaughan. |
| 22 $\frac{3}{4}$ | 11 $\frac{1}{2}$ | 9 $\frac{5}{8}$ | East Africa | G. C. Whitaker. |
| 22 $\frac{3}{4}$ | 10 $\frac{1}{2}$ | 8 $\frac{1}{2}$ | Sudan | Capt. G. Stewart. |
| 22 | 10 $\frac{1}{4}$ | 12 $\frac{1}{4}$ | White Nile. | P. Niedieck. |
| ♀ 22 | 8 $\frac{1}{2}$ | 6 $\frac{3}{4}$ | Do. | Col. St. G. Henry. |
| ♀ 21 | 10 $\frac{3}{4}$ | 11 $\frac{1}{4}$ | Uganda | Dr. A. Paget. |
| ♀ 20 $\frac{1}{4}$ | 9 $\frac{1}{8}$ | 10 | White Nile | P. Niedieck. |



Skull of Neumann's Hartebeest.

NEUMANN'S HARTEBEEST (*Bubalis neumanni*).

Nearly allied to *B. lelwel*, but distinguished by the more widely separated horns, which at first extend outwards, almost at right angles, and then incline inwards. They are also shorter and stouter, with the terminal rings nearer the tips. The Hon. Walter Rothschild gives the following particulars:—

Colour of hair fulvous fawn, much richer on the back, where there are also some darker spots, which may be stains or natural; below very much paler. Chin blackish; tip of tail black. The male is brighter and darker in colour than the female. There are also on the back some patches with longer, thicker, almost whitish-buff hair, perhaps remains of the winter fur. Height at shoulder from 48 to 50 inches.

Distribution.—East Africa, in the neighbourhood of Lake Rudolf and thence southwards towards Lake Baringo, where it may grade into *B. lelwel jacksoni*.

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|------------------|------------------|-------------------|-------------------|
| 22 | 10 $\frac{1}{4}$ | 11 $\frac{1}{4}$ | East Africa . . . | A. J. A. Douglas. |
| 21 $\frac{1}{2}$ | 11 | 9 $\frac{3}{4}$ | Do. . . . | W. W. Ashley. |
| 21 $\frac{1}{2}$ | 11 | 12 $\frac{1}{2}$ | Do. . . . | Hon. Guy Wilson. |

| Length on front curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|------------------------------|---------------------|------------------|-------------------|--|
| 21 $\frac{1}{2}$ | 11 | 21 $\frac{3}{4}$ | East Africa . . . | C. Mitchell. |
| 21 $\frac{1}{4}$ | 12 | 12 | Do. . . . | Guy Fenwick. |
| 21 | 10 $\frac{3}{4}$ | 9 $\frac{1}{2}$ | Do. . . . | Capt. R. Meinertzhagen. |
| 21 | 9 $\frac{3}{8}$ | 11 $\frac{1}{2}$ | Do. . . . | Lieut.-Col. the Hon. W. A. W. Lawson. |
| 21 | 11 $\frac{3}{4}$ | 11 | Do. . . . | W. P. J. Fawcus. |
| 21 | 9 $\frac{3}{4}$ | 9 $\frac{3}{4}$ | Do. . . . | Sir Richard Dane. |
| 21 | 10 $\frac{3}{4}$ | 10 $\frac{1}{2}$ | Do. . . . | Capt. M. A. Black. |
| 20 $\frac{1}{2}$ | 11 | 11 $\frac{3}{4}$ | Do. . . . | W. F. Wailes-Fairbairn. |
| 20 $\frac{1}{2}$ | 10 $\frac{1}{2}$ | 15 | Do. . . . | N. C. Cockburn. |
| 20 $\frac{1}{2}$ | 10 $\frac{1}{4}$ | 13 $\frac{1}{4}$ | Blue Nile . . . | E. S. Stephenson. |
| 20 $\frac{1}{2}$ | 10 $\frac{1}{2}$ | 15 $\frac{7}{8}$ | East Africa . . . | The Master of Belhaven. |
| 20 $\frac{1}{4}$ | 10 $\frac{1}{4}$ | 10 $\frac{1}{4}$ | Do. . . . | Major L. H. R. Pope-Hennessy. |
| 20 $\frac{1}{4}$ | 10 $\frac{1}{2}$ | 14 $\frac{1}{4}$ | Do. . . . | H. Clarkson Williams. |
| 20 | 10 $\frac{3}{4}$ | 14 | Do. . . . | Capt. the Hon. G. H. Douglas Pennant. |
| 20 | 10 $\frac{3}{4}$ | 11 $\frac{1}{4}$ | Do. . . . | R. J. L. Ogilby. |
| 20 | 10 | 11 $\frac{3}{4}$ | Blue Nile . . . | Capt. J. A. Pollock. |
| 20 | 9 $\frac{1}{2}$ | 10 $\frac{1}{2}$ | Do. . . . | Capt. N. A. Orr Ewing. |
| 19 $\frac{3}{4}$ | 11 | 10 $\frac{3}{4}$ | East Africa . . . | Percy C. Madeira. |
| 19 $\frac{1}{2}$ | 11 $\frac{3}{4}$ | 11 $\frac{1}{4}$ | Do. . . . | A. de L. Long. |
| 19 $\frac{1}{2}$ | 11 $\frac{1}{2}$ | 8 $\frac{3}{4}$ | Do. . . . | Major H. B. Dalgety. |
| 19 $\frac{1}{2}$ | 11 $\frac{1}{2}$ | 7 $\frac{1}{2}$ | Do. . . . | Capt. G. A. Swinton Home. |
| 19 $\frac{1}{2}$ | 11 | 13 $\frac{1}{2}$ | Do. . . . | Col. J. E. Gough. |
| 19 $\frac{1}{2}$ | 10 $\frac{1}{2}$ | 13 $\frac{1}{4}$ | Lake Nakaru . . . | E. Sartorius. |
| 19 $\frac{1}{2}$ | 10 $\frac{1}{2}$ | 11 $\frac{1}{2}$ | Do. . . . | H. W. Seton-Karr. |
| 19 $\frac{1}{4}$ | 10 $\frac{3}{4}$ | 6 $\frac{3}{4}$ | Do. . . . | B. Dominick. |
| 19 $\frac{1}{4}$ | 9 $\frac{3}{4}$ | 13 $\frac{1}{4}$ | East Africa . . . | G. de P. Colville. |
| 19 $\frac{1}{4}$ | 9 $\frac{3}{4}$ | 10 $\frac{1}{4}$ | Do. . . . | Kenneth Crossley. |
| 19 $\frac{1}{4}$ | 9 $\frac{3}{4}$ | 12 | Do. . . . | Major S. Belfield. |
| 19 | 10 | 9 $\frac{1}{2}$ | Do. . . . | R. Holmes. |
| 19 | 10 $\frac{1}{4}$ | 9 $\frac{1}{2}$ | Do. . . . | Major H. W. Stevens. |
| 18 $\frac{3}{4}$ | 10 $\frac{3}{4}$ | 8 $\frac{1}{2}$ | Do. . . . | H. Sampson. |
| 18 $\frac{3}{4}$ | 10 $\frac{1}{4}$ | 10 $\frac{3}{4}$ | Do. . . . | P. K. Glazebrook. |
| 18 $\frac{3}{4}$ | 10 $\frac{3}{4}$ | 8 $\frac{1}{4}$ | Do. . . . | Gorham Brooks. |
| 18 $\frac{3}{4}$ | 10 $\frac{1}{2}$ | 10 | Do. . . . | H. R. H. Prince Arthur of Connaught. |
| ♀ 16 $\frac{3}{4}$ | 8 | 11 $\frac{1}{2}$ | Do. . . . | J. R. Bradley. |
| ♀ 16 $\frac{3}{4}$ | 8 $\frac{1}{2}$ | 12 $\frac{1}{2}$ | Do. . . . | W. J. Chapman. |



Head of Lichtenstein's Hartbeest.

The KONZI, or LICHTENSTEIN'S HARTEBEEST (*Bubalis lichtensteini*).

Inkulando, Mashona.

Konzi, Chila, Chilala, and

Kokotombwi, Barotsi.

Chibisa.

Konshi, Chinyanja.

Horn-pedicle very short and broad, and the horns themselves much flattened and curved inwards towards one another below the terminal backward inclination. Height at shoulder, 50 to 52 inches; weight about 300 lbs. General colour tawny fulvous, becoming more rufous along the back, with the chin, tail-tuft, and front of cannon-bones black.

Distribution.—East Africa north of the Sabi River, throughout Nyasaland and Mozambique to Usagara.

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|----------------|-------------|-----------------------------------|---------------------|
| 23 | 13 | 7½ | ? | Major H. Chamney. |
| 22½ | 11 | 7½ | ? | Mr. Justice Hopley. |
| 22½ | 11¾ | 15 | Barotsiland . . . | T. G. Davey. |
| 22½ | 12¾ | 20 | B.C. Africa . . . | Sir Alfred Sharpe. |
| 21½ | 12¼ | 9 | E. of Tanganyika . . . | O. L. Berringer. |
| 21½ | 12½ | 9 | Batoka Plateau, Northern Rhodesia | F. Smitheman. |
| 21½ | 14 | 11¾ | Chambesi Valley . . . | L. Harger. |
| 21½ | 12¼ | 8½ | N.W. Rhodesia . . . | Capt. P. R. Bald. |
| 21½ | 12½ | 5½ | ? | L. A. Wallace. |

- Owner's measurements.

| Length on front curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|---------------------------|---------------------|------------------|---------------------------|-----------------------------------|
| 21 | 13 | 13 $\frac{3}{4}$ | N.W. Rhodesia | A. de L. Long. |
| 21 | 11 $\frac{3}{4}$ | 4 $\frac{1}{4}$ | Do. | P. K. Glazebrook. |
| 21 | 13 | 8 $\frac{1}{4}$ | Do. | G. F. Watherston. |
| 21 | 13 $\frac{1}{2}$ | 10 $\frac{1}{2}$ | Do. | Dr. W. D. Waterhouse. |
| 20 $\frac{3}{4}$ | 13 | 13 $\frac{1}{4}$ | Do. | G. L. Harrison. |
| 20 $\frac{3}{4}$ | 11 | 7 $\frac{3}{8}$ | Do. | T. D. M. Cardeza. |
| 20 $\frac{3}{4}$ | 13 | 8 $\frac{1}{4}$ | Do. | Lady Scott. |
| 20 $\frac{1}{2}$ | 12 | 4 $\frac{1}{2}$ | Do. | Capt. J. Harington. |
| 20 $\frac{1}{2}$ | 11 $\frac{1}{2}$ | 17 | Do. | W. F. Wailes-Fairbairn. |
| 20 $\frac{1}{4}$ | 14 | 7 | N.E. Rhodesia. | R. Hayne. |
| 20 | 13 | 5 $\frac{3}{4}$ | N.W. Rhodesia | F. C. L. Grieve. |
| 20 | 12 $\frac{1}{2}$ | 8 $\frac{1}{2}$ | Do. | Capt. H. L. Archer-Houblon. |
| 20 | 12 $\frac{1}{2}$ | 5 $\frac{3}{4}$ | Do. | A. C. Brandon. |
| 19 $\frac{5}{8}$ | 13 | 6 $\frac{1}{2}$ | B.C. Africa | Col. A. Colville. |
| 19 $\frac{1}{2}$ | 11 | 9 $\frac{1}{2}$ | N.W. Rhodesia | Marquis Pizzardi. |
| 19 $\frac{1}{2}$ | 13 | 5 $\frac{3}{4}$ | Do. | H. E. Hambro. |
| 19 $\frac{1}{2}$ | 11 $\frac{1}{2}$ | 3 $\frac{3}{4}$ | Do. | Capt. H. T. Lumsden. |
| 19 $\frac{1}{2}$ | 11 $\frac{3}{4}$ | 7 | Do. | R. A. M'Clymont. |
| 19 $\frac{1}{2}$ | 11 $\frac{1}{2}$ | 6 | Do. | Sir Randolph Baker, Bart. |
| 19 $\frac{1}{2}$ | 12 $\frac{1}{4}$ | 9 $\frac{3}{4}$ | Do. | Lieut.-Col. Lord Douglas Compton. |
| 19 $\frac{1}{2}$ | 12 $\frac{1}{2}$ | 6 $\frac{1}{4}$ | Do. | Capt. A. L. Godman. |
| 19 $\frac{1}{2}$ | 12 $\frac{1}{2}$ | 11 | B.C. Africa | C. B. C. Storey. |
| 19 $\frac{1}{2}$ | 13 | 5 $\frac{1}{4}$ | N.W. Rhodesia | Capt. G. A. Swinton Home. |
| ♀ 15 | 8 $\frac{7}{8}$ | 4 $\frac{7}{8}$ | Sabi Valley, Mashonaland. | British Museum (F. C. Selous). |



Head of Hunter's Hartebeest.

The **HIROLA**, or **HUNTER'S HARTEBEEST** (*Damaliscus hunteri*).

Arôli, Somali.

Blanketta, Galla.

With this species we come to a group of antelopes closely allied to the true hartebeests, but with the frontal region not elevated into a horn-pedicle, and the horns themselves forming in most cases a lyrate or simple curve, and the face of medium length. The hair of the face is directed uniformly downwards, and the face-glands are small. In the present species the slender horns are indeed doubly curved, although without the sudden angulation of the true hartebeests. They slant upwards and outwards, and then bend downwards, after which the long points are directed upwards. Colour uniform rufous, with a chevron on the face, the inner surface of the ears, and the tail-tuft white. Height at shoulders about 48 inches; build light and graceful.

Distribution.—Southern Somaliland to north bank of Tana River.

| Length. | | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|----------------------|------------------|---------------------|------------------|--------------------------|-----------------------------|
| On front curve. | Straight. | | | | |
| - 26 $\frac{1}{2}$ | 22 $\frac{1}{8}$ | 8 $\frac{1}{2}$ | 12 $\frac{1}{2}$ | Jubaland . . . | Lieut.-Col. E. G. Harrison. |
| 26 $\frac{3}{8}$ | ... | 8 $\frac{1}{4}$ | 14 $\frac{1}{2}$ | Do. . . . | British Museum. |
| 26 $\frac{1}{4}$ | 22 | 8 $\frac{1}{8}$ | 12 $\frac{1}{2}$ | Tana Valley, E. Africa . | Sir Robert Harvey, Bart. |
| 24 $\frac{7}{8}$ | ... | 8 $\frac{1}{8}$ | 15 $\frac{1}{2}$ | Do. . . . | H. C. V. Hunter. |
| 24 $\frac{5}{8}$ | 21 $\frac{1}{4}$ | 8 $\frac{3}{8}$ | 9 $\frac{3}{4}$ | Do. . . . | Sir Robert Harvey, Bart. |
| - ♀ 21 $\frac{1}{4}$ | 19 $\frac{1}{2}$ | 5 $\frac{7}{8}$ | 11 | Jubaland . . . | Lieut.-Col. E. G. Harrison. |
| 20 $\frac{1}{8}$ | ... | 5 $\frac{5}{8}$ | 8 $\frac{7}{8}$ | Tana Valley, E. Africa . | Hon. Walter Rothschild. |
| ♀ 19 | ... | 5 $\frac{3}{4}$ | 10 $\frac{1}{4}$ | Do. . . . | C. S. Mann. |

- Owner's measurements.



Head of Korrigum.

KORRIGUM, TIANG, or TOPI (*Damaliscus corrigum*).*Korrigum*, Bornow.*Derri*, Hausa.

Horns with a single slightly lyrate curve. Size large. General colour reddish with a blackish blaze on the face and usually similar patches on the upper part of the fore-limbs, hips, and thighs, which extend in the form of a garter on the inside of the limbs above the knees and hocks. Tail-tuft black.

A.—TYPICAL KORRIGUM or SENEGAL HARTEBEEST**(*D. corrigum typicus*).**

In this race the black markings are strongly pronounced, and a streak is given off from the face-blaze to run upwards and outwards below the eye. The lower parts of the legs appear to be coloured like the body.

Distribution.—Senegambia and the interior of West Africa.

| Length on front curve | Circumference. | Tip to Tip. | Locality. | Owner |
|-----------------------|----------------|-------------|----------------|--------------------------------|
| 28½ | 10¾ | 4¾ | N. Nigeria . . | C. F. Watson. |
| 26¾ | 9½ | 15½ | Senegambia . . | Imperial Museum, Vienna. |
| 26½ | 9¾ | 5½ | Lake Chad . . | Major D. F. MacCarthy Morrogh. |
| 25½ | 9½ | 14 | Gambia . . | W. B. Stanley. |
| 24¾ | 10 | 6¾ | Lake Chad . . | A. L. Ross. |
| 24¾ | 9 | 9 | Nigeria . . | A. B. Baillie-Hamilton. |

— Owner's measurements.

| Length on front curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|---------------------------|---------------------|------------------|--------------------------------|--------------------------------|
| 24 $\frac{5}{8}$ | 10 $\frac{1}{4}$ | 7 | Benue . . . | Capt. E. J. Wolseley. |
| 24 $\frac{5}{8}$ | 9 $\frac{5}{8}$ | 4 $\frac{3}{4}$ | Lake Chad . . | Capt. J. B. Cockburn. |
| 24 $\frac{1}{2}$ | 9 $\frac{1}{2}$ | 10 $\frac{3}{4}$ | Do. . . . | P. Chapman. |
| ♀ 24 $\frac{1}{4}$ | 7 | 3 $\frac{3}{4}$ | Do. . . . | Major D. F. MacCarthy Morrogh. |
| 24 | 9 $\frac{1}{2}$ | 6 | Do. . . . | L. C. Jackson. |
| 24 | 10 | 5 | N. Nigeria . . | Major T. Astley Cubitt. |
| 24 | 9 | 9 | Lake Chad . . | Sir F. Lugard. |
| 23 $\frac{3}{4}$ | 9 $\frac{1}{2}$ | 9 $\frac{1}{4}$ | Do. . . . | Major E. J. Lugard. |
| 23 $\frac{3}{4}$ | 9 $\frac{1}{4}$ | 7 $\frac{3}{8}$ | Nigeria . . . | W. F. Gowers. |
| 23 $\frac{3}{4}$ | 10 | 8 | Lake Chad . . | Capt. S. B. B. Dyer. |
| 23 $\frac{3}{4}$ | 9 $\frac{3}{8}$ | 12 | Do. . . . | C. S. Burnett. |
| ♀ 21 $\frac{3}{4}$ | 6 $\frac{3}{4}$ | 5 $\frac{1}{4}$ | N. Nigeria . . | H. Maynard. |
| ♀ 19 $\frac{1}{4}$ | 6 $\frac{3}{4}$ | 8 | Between Benue and Lake Chad | Hon. Walter Rothschild. |



Skull and Horns of Tiang.

B.—TIANG (D. corrigum tiang).

Tiang, Sudani.

The East African representative of the korrigum, from which it differs by the larger area of black on the inside of the limbs, and the tan colour of their lower portion. The tiang of Uganda (*D. c. selousi*) is distinguished by the bright chestnut colour of the muzzle and of the area round the eye above the dark eye-stripe. The desert-tiang (*D. c. jonesi*) of the Upper Sudan inhabits sandy tracts in place of swamps, and is a plumper and browner animal, with no dark eye-stripe, and, it is reported, no dark markings on the limbs.

Distribution.—Sennar, Kordofan, and the Bahr-el-Ghazal.

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|------------------|------------------|-----------------|--------------------------|
| 25 $\frac{7}{8}$ | 9 $\frac{3}{4}$ | 11 $\frac{1}{2}$ | Kordofan . . | Major C. J. Hawker. |
| 24 $\frac{3}{4}$ | 10 $\frac{1}{2}$ | 9 $\frac{5}{8}$ | Do. . . | Major A. J. B. Percival. |
| 24 $\frac{1}{2}$ | 9 $\frac{1}{2}$ | 9 | White Nile . . | H. Cookson. |
| 24 $\frac{1}{2}$ | 10 | 7 $\frac{1}{8}$ | W. Kordofan . . | A. L. Butler. |

RECORDS OF BIG GAME

| Length on front curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|---------------------------|---------------------|------------------|-------------------|----------------------------------|
| 24 $\frac{1}{4}$ | 10 | 15 $\frac{1}{4}$ | Kordofan . . | Sir Robert Harvey, Bart. |
| 23 $\frac{3}{4}$ | 8 | 7 $\frac{1}{2}$ | White Nile . . | T. D. M. Cardeza. |
| 23 $\frac{1}{2}$ | 10 | 10 $\frac{1}{2}$ | Kordofan . . | G. L. Harrison. |
| 23 $\frac{1}{4}$ | 8 $\frac{3}{4}$ | 8 $\frac{1}{4}$ | Dinder Valley . . | C. D. Eyre. |
| 23 | 9 $\frac{1}{2}$ | 8 $\frac{1}{2}$ | White Nile . . | E. C. Crispin. |
| 22 $\frac{7}{8}$ | 8 $\frac{3}{4}$ | 5 $\frac{1}{4}$ | Do. . . | Lord St. Oswald. |
| 22 $\frac{3}{4}$ | 8 $\frac{3}{4}$ | 9 | Do. . . | British Museum (R. M'D. Hawker). |
| 22 $\frac{5}{8}$ | 9 | 7 | Sudan . . | Capt. R. J. Collins. |
| 22 $\frac{1}{2}$ | 9 | 6 $\frac{1}{2}$ | Do. . . | G. C. Whitaker. |
| 22 $\frac{1}{2}$ | 8 $\frac{3}{4}$ | 6 $\frac{1}{2}$ | Do. . . | Capt. G. S. Cameron. |
| 22 $\frac{1}{2}$ | 8 $\frac{1}{2}$ | 9 $\frac{1}{4}$ | Dinder Valley . . | C. Bower Ismay. |
| ♀ 22 $\frac{1}{2}$ | 8 $\frac{1}{4}$ | 7 $\frac{1}{2}$ | Kordofan . . | Walter Jones. |
| 22 $\frac{3}{8}$ | 9 $\frac{3}{4}$ | 14 | White Nile . . | Major-Gen. B. T. Mahon. |
| 22 $\frac{1}{4}$ | 9 | 5 $\frac{1}{2}$ | Sudan . . | Capt. G. S. Nickerson. |
| 22 $\frac{1}{4}$ | 8 $\frac{1}{2}$ | 6 $\frac{1}{4}$ | White Nile . . | Major H. N. Dunn. |
| 22 $\frac{1}{4}$ | 8 $\frac{3}{4}$ | 6 | Do. . . | Capt. A. H. Vivian. |
| 22 $\frac{1}{4}$ | 9 $\frac{3}{4}$ | 4 | Lado . . | Q. Grogan. |
| 22 $\frac{1}{4}$ | 9 $\frac{1}{2}$ | 7 $\frac{1}{4}$ | Sudan . . | Capt. E. H. Francis. |
| ♀ 22 $\frac{1}{4}$ | 8 $\frac{3}{4}$ | 7 $\frac{1}{2}$ | Kordofan . . | Major A. J. B. Percival. |



Head of Topi. From a specimen shot by the late Mr. A. H. Neumann.

C.—TOPI (*D. corrugum jimela*).

Korki, Galla.

Mangazi, Waganda.

Differs from *D. c. typicus* by the darker colour and absence of dark eye-stripe (see illustration). General colour dark reddish brown, with a silky bluish-grey gloss; shoulders and thighs with blue-black patches; no dark stripe from the frontal blaze to the eye; under-parts bright cinnamon. Dark markings absent in young. Horns lyre-shaped, with the tips inclined backwards and inwards. A topi from the Upper Congo appears to connect *typicus* with *jimela*, having a vestige of the black eye-stripe. Height at shoulder 48 to 50 inches. Weight about 300 lbs.

Distribution.—Typically from the Juba district to British East Africa, thence to the Sabuki River, Uganda, and Uniamwezi, also near Lake Rudolf.

| Length on front curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|---------------------------------|---------------------|----------------|----------------------------|---------------------|
| 22½ | 8½ | 5½ | Gallaland . . . | D. P. MacGillivray. |
| 21 | 8 | 6½ | North end of Lake Rudolf . | The late H. Andrew. |

| Length on front curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|---------------------------------|---------------------|----------------|------------------------------------|-------------------------------|
| -20½ | 8½ | 7½ | Uganda | Dr. A. MacCarthy Morrogh. |
| 19½ | 9½ | 7¼ | Do. | Lord Hindlip. |
| 19¼ | 6⅝ | 3¾ | East Africa | H. C. V. Hunter. |
| 19½ | 8½ | 8 | S. Albert Edward Nyanza | E. S. Grogan. |
| 19½ | 8¼ | 6¼ | East Africa | A. de L. Long. |
| 19 | 7⅞ | 8 | Lake Rudolf | A. E. Butter. |
| 19 | 8¼ | 7¼ | Uganda | Capt. A. W. Jennings Bramly. |
| 19 | 6¾ | 8½ | East Africa | A. Louw. |
| ♀ 19 | 7¼ | 5⅝ | Lado Enclave | Major P. H. G. Powell-Cotton. |
| 18¾ | 8¼ | 6¼ | North end of Lake Rudolf | The late A. H. Neumann. |
| 18¾ | 8⅝ | 8 | Albert Edward Nyanza | Major P. H. G. Powell-Cotton. |
| 18½ | 7¾ | 5⅝ | Tana Valley | Major H. de Prée. |
| 18½ | 8¾ | 8½ | East Africa | Sir Edmund G. Loder, Bart. |
| 18½ | 8⅝ | 5½ | Do. | J. Carr Saunders. |
| 18½ | 9 | 8¾ | Do. | Capt. R. Meinertzhagen. |
| 18¼ | 8½ | 8 | Do. | B. Barr Smith. |
| 18¼ | 8¼ | 5½ | Jubaland | L. Aylmer. |
| ♀ 18 | 6½ | 7⅝ | East Africa | Duke of Medinaceli. |
| ♀ 17 | 6⅞ | 8½ | Do. | F. C. Selous. |

- Owner's measurements.



Head of Bontebok.

The BONTEBOK (*Damaliscus pygargus*).

Distinguished from the preceding species of the genus by the white blaze on the face, which is continuous from the horns to the nose. Height at shoulder about 40 inches. Weight about 200 lbs. Colour of fore part of back rufous fawn darkening into blackish on the back of ears, face, near the rump, flanks, shoulders, front of limbs, and tail-tuft; side of basal part of rump, upper half of tail, under-parts, and much of hind surface of limbs white.

The horns very nearly resemble those of the blesbok in shape, but their colour is much darker.

Distribution.—Cape Colony, south of the Orange River; now nearly exterminated. Although formerly occurring in tens of thousands on the Karus of Cape Colony and near Cape Agulhas, bontebok are reduced to a single herd preserved on some flats on the estate of Mr. Vander Byl, near Swellendam, in the south of Cape Colony.

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|-------------------------------|-----------------|-----------------|------------------|--------------------------------|
| 16 $\frac{3}{8}$ | 6 $\frac{3}{4}$ | 9 $\frac{1}{8}$ | ? | British Museum. |
| 16 $\frac{1}{4}$ | 6 $\frac{3}{8}$ | 8 $\frac{3}{4}$ | Bredasdorp . . . | A. C. Campbell. |
| ¹ 15 $\frac{7}{8}$ | 6 $\frac{7}{8}$ | 8 | Do. . . . | British Museum (F. C. Selous). |

¹ Weight, 200 lbs. Height, 41 $\frac{1}{2}$ at shoulder.

| Length on front curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|---------------------------------|---------------------|-----------------|-------------------|---------------------------------|
| -15 $\frac{1}{2}$ | 6 $\frac{1}{2}$ | 7 $\frac{1}{2}$ | Bredasdorp . . . | Capt. W. Jardine. |
| 15 $\frac{1}{2}$ | 6 $\frac{1}{2}$ | 8 $\frac{1}{2}$ | Do. . . . | Hon. Walter Rothschild. |
| 15 $\frac{1}{2}$ | 6 $\frac{1}{2}$ | 7 | Do. . . . | W. A. Simpson Hinchliffe. |
| -15 $\frac{1}{2}$ | 6 $\frac{1}{2}$ | 5 | Do. . . . | A. Ohlsson. |
| 15 $\frac{1}{2}$ | 6 $\frac{1}{2}$ | 9 $\frac{3}{8}$ | Do. . . . | A. C. Humbert. |
| -15 $\frac{1}{2}$ | 6 $\frac{3}{8}$ | 9 $\frac{3}{4}$ | Do. . . . | Mr. Justice Hopley. |
| 15 $\frac{3}{8}$ | 6 $\frac{1}{8}$ | 8 $\frac{1}{8}$ | Cape Colony . . . | Sir Victor Brooke's Collection. |
| -15 $\frac{1}{4}$ | 6 $\frac{1}{8}$ | 9 | Bredasdorp . . . | P. C. Keytel. |
| 15 | 6 $\frac{3}{4}$ | 8 $\frac{1}{2}$ | Cape Colony . . . | F. C. Selous. |
| 15 | 6 $\frac{3}{8}$ | 7 $\frac{5}{8}$ | Do. . . . | The late Capt. F. Cookson. |
| 15 | 6 $\frac{1}{4}$ | 6 $\frac{3}{4}$ | Bredasdorp . . . | W. S. Curtis. |
| -15 | 6 $\frac{1}{4}$ | 7 $\frac{5}{8}$ | Do. . . . | Abe Bailey. |
| -15 | 6 | 9 $\frac{1}{8}$ | Do. . . . | Dr. Albert von Stephani. |
| 15 | 6 $\frac{1}{4}$ | 10 | Do. . . . | A. W. Guthrie. |
| -14 $\frac{1}{2}$ | ... | ... | Do. . . . | South African Museum. |
| ♀ 14 $\frac{1}{4}$ | 5 $\frac{3}{8}$ | 7 $\frac{5}{8}$ | Do. . . . | Abe Bailey. |
| ♀ 14 $\frac{1}{4}$ | 5 $\frac{1}{4}$ | 7 | Do. . . . | W. A. Simpson Hinchliffe. |
| ¹ ♀ 13 $\frac{1}{2}$ | 5 $\frac{1}{4}$ | 7 $\frac{1}{2}$ | Do. . . . | British Museum (F. C. Selous). |
| ♀ -13 | 5 | 6 $\frac{1}{8}$ | Do. . . . | Abel Chapman. |

- Owner's measurements.

¹ Height at shoulder, 36 $\frac{1}{2}$.



Horns of Female and Male Blesbok.

The **BLESBOK** (*Damaliscus albifrons*).

Nunni, Bechuana.

Closely allied to the bontebok, but with the white blaze on the forehead divided by a brown line between the eyes, the absence of a white rump-patch, the wholly brown tail, and the yellowish rings of the horns; the horns themselves showing a greenish tinge.

Formerly to be numbered by hundreds of thousands, the beautiful blesbok has in the last fifty years grown very scarce indeed, being only met with in small numbers on a few Boer farms in the Transvaal and the Orange River Colony. Seventy years ago blesboks often literally darkened the face of the land with their innumerable legions. The north of the Cape Colony, Griqualand West, the Orange River Colony, and the plains of the Western and Southern Transvaal were the true

home of this beautiful antelope. Gordon Cumming wrote as follows of the blesbok-country in 1848: "The plains exhibited one purple mass of graceful blesboks, which extended without a break as far as my eyes could strain; the depth of their vast legions covered a breadth of about six hundred yards."

Distribution.—Northern plains of Cape Colony, Orange River Colony, Transvaal, Griqualand West, and Bechuanaland; now nearly exterminated.

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|-----------------|------------------|-----------------------|-----------------------------|
| 18 $\frac{1}{4}$ | 5 $\frac{3}{4}$ | 12 $\frac{1}{4}$ | South Africa . . . | Sir Edmund G. Loder, Bart. |
| -18 | 6 $\frac{1}{2}$ | 10 $\frac{3}{8}$ | Orange River Colony . | F. R. N. Findlay. |
| 17 $\frac{3}{4}$ | 6 $\frac{1}{2}$ | 15 $\frac{1}{2}$ | Do. . . | Major B. Horsbrugh. |
| -17 $\frac{1}{2}$ | 6 $\frac{1}{2}$ | 8 $\frac{3}{4}$ | Transvaal . . . | J. B. Wheelwright. |
| 17 $\frac{1}{4}$ | 6 $\frac{3}{4}$ | 7 | Do. . . | Abe Bailey. |
| -17 $\frac{1}{4}$ | 6 $\frac{1}{4}$ | 10 $\frac{1}{8}$ | Orange River Colony . | Capt. W. Jardine. |
| 17 $\frac{1}{4}$ | 7 $\frac{1}{4}$ | 6 $\frac{1}{2}$ | Do. . . | B. J. Fitzherbert. |
| 17 $\frac{1}{4}$ | 6 $\frac{3}{4}$ | 8 $\frac{1}{2}$ | Do. . . | Sir H. J. Goold-Adams. |
| 17 | ... | 8 $\frac{1}{2}$ | ? | Major W. Anstruther Gray. |
| 17 | 6 $\frac{3}{4}$ | 7 | ? | F. V. Worthington. |
| 17 | 7 | 10 | ? | J. L. Drège. |
| -16 $\frac{7}{8}$ | 7 | 7 $\frac{1}{2}$ | Orange River Colony . | Count E. Hoyos. |
| 16 $\frac{3}{4}$ | 6 $\frac{3}{4}$ | 7 | ? | T. Stephenson. |
| 16 $\frac{3}{4}$ | 6 $\frac{1}{2}$ | 9 $\frac{5}{8}$ | Orange River Colony . | Col. W. H. Sitwell. |
| - ♀ 16 $\frac{1}{2}$ | 6 $\frac{1}{4}$ | 8 $\frac{3}{4}$ | Do. . . | Abe Bailey. |
| 16 $\frac{1}{2}$ | 7 | 8 | Do. . . | Capt. H. D. Livingstone. |
| 16 $\frac{1}{2}$ | 6 $\frac{1}{2}$ | 9 $\frac{1}{2}$ | Do. . . | Capt. Sandilands. |
| 16 $\frac{1}{2}$ | 6 $\frac{3}{4}$ | 6 | Do. . . | Major C. F. Pinney. |
| 16 $\frac{1}{2}$ | 6 $\frac{1}{4}$ | 8 $\frac{1}{4}$ | Do. . . | Hon. R. A. Ward. |
| 16 $\frac{3}{8}$ | 7 | 6 $\frac{3}{4}$ | Do. . . | A. E. Croker. |
| 16 $\frac{1}{4}$ | 6 $\frac{3}{8}$ | 7 $\frac{1}{4}$ | Do. . . | Lieut.-Col. F. Fitzherbert. |
| 16 $\frac{1}{4}$ | 6 $\frac{3}{8}$ | 7 $\frac{1}{4}$ | Do. . . | Major G. F. Henry. |
| 16 $\frac{1}{4}$ | 6 | 6 $\frac{1}{2}$ | ? | Capt. R. Meinertzhagen. |
| 16 $\frac{1}{4}$ | 7 | 9 $\frac{1}{4}$ | ? | British Museum. |
| 16 | 6 $\frac{3}{8}$ | 7 | ? | E. W. S. Balfour. |

- Owner's measurements.

| Length on front curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|------------------------------|---------------------|-----------------|-------------------------------------|-------------------------------------|
| 16 | 6 $\frac{3}{4}$ | 8 $\frac{3}{4}$ | Orange River Colony | . Lieut.-Col. Lord Douglas Compton. |
| 16 | 6 $\frac{3}{4}$ | 7 | Do. | . W. A. Simpson Hinchliffe. |
| 15 $\frac{1}{2}$ | 6 $\frac{1}{2}$ | 7 $\frac{1}{4}$ | Transvaal . . . | . H. A. Bryden. |
| 15 $\frac{1}{2}$ | 6 $\frac{3}{4}$ | 7 $\frac{1}{4}$ | Orange River Colony | . E. M'Clellan. |
| 15 $\frac{1}{2}$ | 6 $\frac{1}{4}$ | 8 | Do. | . Major C. L. Graham. |
| 15 $\frac{1}{4}$ | 6 $\frac{1}{2}$ | 10 | Driefontein, Orange River Colony | British Museum (F. C. Selous). |
| 15 | 5 $\frac{1}{4}$ | ... | Orange River Colony | . Capt. H. D. Livingstone. |
| 14 $\frac{3}{4}$ | 4 $\frac{3}{4}$ | 8 $\frac{1}{4}$ | Do. | . P. C. Keytel. |
| 14 | 4 $\frac{3}{4}$ | 6 $\frac{3}{4}$ | Do. | . Hon. R. A. Ward. |
| 14 | 5 $\frac{3}{4}$ | 5 $\frac{1}{2}$ | ? | T. Stephenson. |

- Owner's measurements.

1 Weight, 180 lbs. Height at shoulder, 39 $\frac{1}{2}$ inches.



Head of Blesbok.



Head of Sassaby. From a specimen shot in Mashonaland by Mr. F. C. Selous.

The SASSABY or BASTARD HARTEBEEST (*Damaliscus lunatus*).

Incolomo, Matabili.
Ingalowana, Basuto.
Inkweko, Masubia.
Inyundo, Makalaka.
Kaboli, Barotsi and Ngami.

Luchu, Masara.
M'tengo, Chilala and Chibisa.
Mzanci, Swazi.
Mzansi, Zulu.
Unchuru, Makuba.

Horns short, starting obliquely outwards, with a single upward and backward lunate curve. Height at shoulder from 3 feet 10 inches to 4 feet. General colour dark chestnut-red, with the face, shoulders, hips, upper portions of limbs, and tail-tuft black, and the region of the groin and margin of the ears white.

The sassaby has the reputation—in the opinion of all hunters who have tested its speed—of being the fleetest and most enduring antelope in South Africa; and were it not that, in common with the Cape hartebeest, it happens to be lacking in presence of mind, it would very seldom fall to the sportsman's rifle. A troop of sassaby may be often turned from its course, or brought to a halt, by firing over the heads of the fleeing animals. Or if the leader of the troop be wounded and turned out, the rest of the herd become confused and now and again offer easy shots.

Distribution.—South-East Africa, from north of the Orange River to the Zambesi, westward to Lake Ngami, and northwards to British Central Africa.

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|-----------------|------------------|--------------------------|------------------------------------|
| 17 $\frac{1}{2}$ | 7 $\frac{1}{4}$ | 11 | N.E. Rhodesia . . . | R. N. P. Creed. |
| 17 | 8 $\frac{1}{2}$ | 12 $\frac{1}{4}$ | Do. . . | Col. A. Colville. |
| 16 $\frac{3}{4}$ | 7 $\frac{1}{4}$ | 11 $\frac{1}{4}$ | Ngamiland . . . | Hon. G. Legge. |
| 16 $\frac{5}{8}$ | 7 $\frac{5}{8}$ | 13 $\frac{3}{4}$ | N.E. Rhodesia . . . | F. H. Melland. |
| 16 $\frac{1}{2}$ | 7 $\frac{1}{2}$ | 14 | Do. . . | R. Hayne. |
| 16 $\frac{1}{2}$ | 7 $\frac{1}{2}$ | 12 $\frac{1}{4}$ | Do. . . | H. Cookson. |
| 16 $\frac{1}{2}$ | 7 $\frac{3}{4}$ | 10 $\frac{1}{4}$ | S. Rhodesia . . . | C. W. Adams. |
| 16 | 7 $\frac{3}{4}$ | 11 $\frac{1}{4}$ | ? | A. Hugh Bainbridge. |
| 16 | 7 $\frac{5}{8}$ | 12 $\frac{3}{4}$ | Chinama, B.C.A. . . | Hon. Walter Rothschild. |
| ♀ 16 | 6 $\frac{1}{4}$ | 14 $\frac{1}{4}$ | N.E. Rhodesia . . . | Col. A. Colville. |
| 15 $\frac{3}{4}$ | 7 $\frac{1}{2}$ | 15 $\frac{1}{2}$ | Mashonaland . . . | Sir John Willoughby, Bart. |
| 15 $\frac{5}{8}$ | 7 $\frac{1}{2}$ | 11 $\frac{3}{4}$ | ? | Sir Edmund G. Loder, Bart. |
| 15 $\frac{1}{2}$ | 8 | 11 $\frac{3}{4}$ | N.E. Rhodesia . . . | A. de L. Long. |
| 15 $\frac{1}{2}$ | 8 $\frac{1}{4}$ | 10 $\frac{1}{4}$ | ? | W. A. Simpson Hinchliffe. |
| 15 $\frac{1}{2}$ | 8 | 13 | N.E. Rhodesia . . . | P. K. Glazelbrook. |
| 15 $\frac{1}{4}$ | ... | ... | Mashonaland . . . | F. C. Selous. |
| 15 $\frac{1}{4}$ | 7 | 14 $\frac{3}{8}$ | ? | F. T. Garbutt. |
| 15 $\frac{1}{4}$ | 8 $\frac{1}{2}$ | 13 $\frac{3}{4}$ | ? | W. F. Wailes-Fairbairn. |
| 15 $\frac{1}{4}$ | 8 | 12 $\frac{1}{4}$ | S.E. Africa . . . | British Museum (Sir Andrew Smith). |
| 15 | 8 | 13 $\frac{1}{4}$ | Rhodesia . . . | Duke of Westminster. |
| 15 | 7 $\frac{1}{2}$ | 11 | ? | R. H. Venables Kyrke. |
| 15 | 8 $\frac{3}{8}$ | 11 $\frac{5}{8}$ | S.E. Africa . . . | G. Richards. |
| 15 | 7 | 11 | Do. . . | A. Moseley. |
| 14 $\frac{3}{4}$ | 7 $\frac{1}{2}$ | 12 $\frac{3}{4}$ | ? | A. Gerald Biden. |
| 14 $\frac{3}{4}$ | 7 $\frac{1}{2}$ | 12 | North of Delagoa Bay . . | A. Cameron. |
| ♀ 14 $\frac{1}{2}$ | 6 $\frac{1}{4}$ | 13 $\frac{1}{2}$ | S. Rhodesia . . . | C. W. Adams. |



Horns of Brindled Gnu. From specimen in the British Museum, presented by Mr. Rowland Ward.

The BRINDLED GNU or BLUE WILDEBEEST (*Connochætes taurinus*).

Ee-vumba, Makalaka.

Ikokoni, Basuto.

Inkoni-koni, Amandebili.

Inkongoni, Swazi and Zulu.

Kokong, Barotsi and Batoka.

Minyumbwi, Batonga.

Munyumbwa, Chila.

Numbo, Masubia.

Nyamba, Chilala and Chisenga.

Unsozo, Makuba.

From their near relatives the hartebeests the gnus, or wildebeests, are distinguishable at a glance by their grotesque shape and smooth horns, as they also are by their habits. The long, broad, and massive head has a blunt and bristly muzzle, and tufts of coarse hair on the forehead and chin; the chin-tuft also extending on to the throat. The horns, which are placed on the crown of the head, are approximated at their bases, especially in old bulls, and are nearly smooth, more or less flattened at the bases, but almost cylindrical at the tips; the curvature being at first outwards, or outwards and downwards, and then bending upwards at the tips. An abundant mane of long hair clothes the back of the neck; and the tail is covered with longer and softer hairs, reaching considerably below the hocks. It is from the equine form of the tail that these animals were long popularly known by the name of "horned horse." The hoofs are characterised by their narrow form.

The blue wildebeest, as this species is called in S. Africa, is a large animal, standing from 4 feet 3 to 4 feet 4½ inches at the shoulder. Its most characteristic features are the outward direction of the horns, which are but little expanded at the base and not unlike those of a buffalo; the uniformly black tail, the partially pendent mane, the presence of a fringe on the throat, and the absence of long hair on the middle of the face, the lower part of the chest, and between the fore-legs. The general colour varies from grizzled roan to blackish slaty brown, with more or less distinct vertical dark stripes, most conspicuous in the

lighter-coloured specimens, on the sides of the neck and fore-quarters. Typically, the fringe of hair on the throat, like the mane and tuft on the forehead, is black.

Distribution.—Formerly ranging from the north of the Orange River for a long distance up East Africa, the brindled gnu is now practically exterminated in the Orange River Colony and the adjacent districts south of the Limpopo. It is, however, still to be met with in parts of Griqualand West and of the Kalahari, as well as in British Bechuanaland; while in Khama's country and Rhodesia, and thence northwards through Central and East Africa, it is



Head of Brindled Gnu.

comparatively abundant, and it also occurs in Mozambique. In spite of its clumsy and ungainly appearance, the brindled gnu is a rapid mover; and even when severely wounded will not unfrequently succeed in making good its escape from the mounted hunter.

It is generally distributed in South-East Central Africa, and north of the Zambesi is represented by the Nyasaland race (*C. taurinus johnstoni*), distinguished by the white chevron on the face. Another race is noticed below.

A.—TYPICAL RACE (*C. taurinus typicus*).

| Widest outside. | Widest inside. | Length on front curve. | Breadth of palm. | Tip to Tip. | Locality. | Owner. |
|-------------------|------------------|------------------------|-------------------------------|------------------|---------------|---|
| ... | 29 | 31 | ¹ 13 $\frac{1}{4}$ | 15 $\frac{1}{4}$ | Sabi Flats | Dr. R. P. Mitchell. |
| -33 $\frac{1}{2}$ | 28 $\frac{3}{4}$ | ... | 6 $\frac{1}{2}$ | 24 | Do. | B. Secretan. |
| 32 $\frac{1}{2}$ | 29 | 20 | 4 | 26 $\frac{1}{2}$ | P.E. Africa | British Museum (Rowland Ward). |
| ... | 28 $\frac{1}{2}$ | 21 $\frac{5}{8}$ | 5 $\frac{1}{4}$ | 17 $\frac{3}{8}$ | Matabililand | G. H. M. Banks. |
| 31 $\frac{3}{4}$ | 28 | 22 $\frac{1}{4}$ | 4 $\frac{3}{4}$ | 18 $\frac{3}{4}$ | B.C. Africa | Capt. G. M. P. Hawthorne. |
| ... | 28 $\frac{1}{2}$ | 20 $\frac{3}{4}$ | 5 | 16 | Pungwe | C. C. Gouldsmith. |
| 30 $\frac{7}{8}$ | 26 $\frac{3}{4}$ | 21 | 4 $\frac{1}{4}$ | 21 $\frac{1}{2}$ | S.E. Africa | American National Collection. |
| -30 $\frac{3}{4}$ | 27 | ... | 4 | 20 $\frac{3}{4}$ | Do. | H. M. von Archer. |
| 30 $\frac{5}{8}$ | 26 $\frac{3}{8}$ | 23 $\frac{1}{2}$ | 5 $\frac{1}{8}$ | 16 $\frac{3}{4}$ | ? | Abe Bailey. |
| 30 $\frac{1}{2}$ | 26 $\frac{1}{2}$ | 23 $\frac{1}{2}$ | 6 $\frac{1}{2}$ | 18 $\frac{1}{4}$ | S.E. Africa | F. C. Selous. |
| 30 $\frac{1}{2}$ | 26 $\frac{3}{4}$ | 24 $\frac{1}{4}$ | 4 $\frac{1}{2}$ | 18 | P.E. Africa | R. A. M'Clymont. |
| 30 $\frac{1}{2}$ | 26 | 22 $\frac{1}{4}$ | 4 $\frac{1}{2}$ | 18 $\frac{1}{2}$ | P.E. Africa | Col. A. Colville. |
| 30 $\frac{1}{4}$ | 26 | 22 | 4 $\frac{1}{2}$ | 17 $\frac{3}{4}$ | Do. | W. A. Simpson Hinchliffe. |
| ... | 26 $\frac{1}{2}$ | 21 $\frac{1}{4}$ | 4 $\frac{5}{8}$ | 20 $\frac{1}{2}$ | Matabililand | Major R. Hayes-Sadler. |
| 30 $\frac{1}{4}$ | 26 $\frac{1}{4}$ | 19 $\frac{3}{4}$ | 5 | 21 $\frac{1}{2}$ | ? | B. Nicolson. |
| 30 | 25 $\frac{3}{4}$ | 21 $\frac{1}{2}$ | 4 $\frac{3}{4}$ | 19 $\frac{1}{4}$ | Pungwe | Dr. S. Martin. |
| 30 | 26 $\frac{1}{4}$ | 21 $\frac{1}{2}$ | 4 $\frac{1}{2}$ | 18 $\frac{1}{4}$ | Do. | Hon. Walter Rothschild. |
| 30 | 26 | 21 | 4 $\frac{1}{2}$ | 19 $\frac{1}{4}$ | Do. | Count R. Coudenhove-Kalergi. |
| ... | 25 $\frac{1}{2}$ | 22 | 4 $\frac{1}{4}$ | 17 | S. Africa | G. Richards. |
| 29 $\frac{3}{4}$ | 24 $\frac{1}{4}$ | 24 $\frac{5}{8}$ | 4 $\frac{1}{4}$ | 18 $\frac{3}{4}$ | S.E. Africa | H. W. Elliott. |
| 29 $\frac{3}{4}$ | 26 | 22 | 4 | 18 $\frac{3}{8}$ | ? | British Museum (Sir A. Smith). |
| 29 $\frac{1}{2}$ | 25 | 19 $\frac{1}{4}$ | 5 | 20 $\frac{1}{4}$ | ? | G. Bateman. |
| 29 $\frac{1}{2}$ | 25 $\frac{1}{4}$ | 20 $\frac{1}{2}$ | 5 | 20 | Zululand | Col. D. Bruce. |
| 29 | 26 | 19 | 4 | 21 $\frac{1}{4}$ | N.E. Rhodesia | H. Cookson. |
| 29 | 25 $\frac{1}{2}$ | ... | 3 $\frac{3}{4}$ | 19 | Pungwe | H.R.H. Prince Pedro d'Orléans et de Braganza. |
| 29 | 24 $\frac{3}{4}$ | 20 $\frac{1}{4}$ | 4 $\frac{1}{4}$ | 16 $\frac{3}{4}$ | ? | A. Hugh Bainbridge. |
| 28 $\frac{5}{8}$ | 24 $\frac{1}{4}$ | 21 $\frac{1}{4}$ | 4 $\frac{1}{2}$ | 16 $\frac{1}{4}$ | N.W. Rhodesia | II. D. Hannay. |
| 28 $\frac{5}{8}$ | 24 $\frac{1}{4}$ | 19 $\frac{1}{2}$ | 5 | 19 $\frac{1}{2}$ | Zululand | A. Cameron. |
| 28 $\frac{5}{8}$ | 24 $\frac{1}{4}$ | 22 | 5 $\frac{1}{2}$ | 19 $\frac{1}{4}$ | S. Africa | Sir Edmund G. Loder, Bart. |
| 28 $\frac{1}{4}$ | 24 $\frac{1}{2}$ | 20 | 4 | 19 $\frac{3}{4}$ | B.C. Africa | E. M'Clellan. |
| 28 $\frac{1}{4}$ | 24 $\frac{1}{2}$ | 24 | 3 $\frac{3}{4}$ | 17 $\frac{3}{4}$ | N.W. Rhodesia | K. C. North. |

- Owner's measurements.

¹ Circumference.



Head of Nyasa Brindled Gnu.

Shot by Mr. R. C. Forster.

| Widest outside. | Widest inside. | Length on front curve. | Breadth of palm. | Tip to Tip. | Locality. | Owner. |
|--------------------|------------------|------------------------|------------------|------------------|---------------|-------------------------|
| 30 | 25 $\frac{1}{2}$ | 24 $\frac{1}{2}$ | 4 $\frac{1}{2}$ | 18 $\frac{3}{4}$ | Nyasaland | Capt. R. Meinertzhagen. |
| 29 $\frac{1}{8}$ | 25 | 20 $\frac{3}{4}$ | 5 | 16 | B.C. Africa | A. R. Andrew. |
| 26 | 22 | 13 | 5 | 19 | N.W. Rhodesia | G. Crompton. |
| 26 | 21 $\frac{3}{4}$ | 13 $\frac{1}{2}$ | 4 $\frac{1}{2}$ | 17 $\frac{3}{4}$ | B.C. Africa | Sir Alfred Sharpe. |
| ♀ 25 $\frac{7}{8}$ | 21 $\frac{1}{8}$ | 18 $\frac{7}{8}$ | 4 | 12 $\frac{3}{8}$ | Mashonaland | J. Ff. Darling. |
| 25 $\frac{1}{4}$ | 21 $\frac{1}{2}$ | 18 $\frac{3}{4}$ | 4 $\frac{1}{2}$ | 13 $\frac{1}{2}$ | B.C. Africa | R. H. Storey. |
| 25 $\frac{1}{2}$ | 21 $\frac{5}{8}$ | 17 $\frac{1}{2}$ | 4 | 15 | Barotsiland | R. T. Coryndon. |
| 25 $\frac{1}{4}$ | 21 $\frac{1}{2}$ | 14 $\frac{3}{4}$ | 4 $\frac{1}{2}$ | 16 | Do. | R. C. Forster. |
| ♀ 17 $\frac{1}{4}$ | 13 $\frac{3}{4}$ | 12 | 2 $\frac{3}{4}$ | 9 $\frac{1}{2}$ | Batoka | R. T. Coryndon. |



Skull and Horns of White-bearded Gnu.

B.—KILIMANJARO or WHITE-BEARDED RACE (*C. taurinus albojubatus*).

Nyumbu, Swahili. *Lavagadli*, Somali.
Engat, Masai.

A race distinguished by its slightly paler colouring, and the yellowish white throat-fringe, a few whitish hairs being also mingled with the mane. The form of the widest part of the front of the horns is somewhat different from the corresponding region in the typical race. Weight, about 550 lbs.

Distribution.—East Africa, Athi plains, Ukambani, north of Kilimanjaro.

| Widest outside. | Widest inside. | Length on front curve. | Breadth of palm. | Tip to Tip. | Locality. | Owner. |
|-----------------|----------------|------------------------|------------------|-------------|-------------|----------------------------|
| 29½ | 26¼ | 24¼ | 4½ | 18¾ | East Africa | W. L. Spencer Churchill. |
| 29½ | 25½ | 24 | 5¼ | 16⅝ | Do. | Sir Edmund G. Loder, Bart. |
| 29¼ | 25¼ | 21½ | 4¾ | 17½ | Do. | G. L. Harrison. |
| 29 | 25 | 25¼ | 4¾ | 16¾ | Do. | Mrs. J. E. R. Oldfield. |
| 29 | 24¼ | 21 | 4¾ | 18 | Do. | H. C. Phipps. |
| 28¾ | 25 | 21½ | 4½ | 18¾ | Do. | C. Bulpett. |
| 28¾ | 25¼ | 21 | 4¾ | 18 | Do. | W. Sewall. |
| 28½ | 25 | 21 | 4½ | 17½ | Do. | G. G. Longden. |
| 28¼ | 24½ | 21 | 5 | 18¾ | Do. | Abel Chapman. |
| 28¼ | 24½ | 22 | 5 | 16 | Do. | J. H. Penruddock. |

| Widest outside. | Widest inside. | Length on front curve. | Breadth of palm. | Tip to Tip. | Locality. | Owner. |
|--------------------|------------------|------------------------|------------------|------------------|-------------|------------------------------|
| 28 $\frac{1}{4}$ | 25 | 22 | 4 $\frac{1}{2}$ | 19 | East Africa | W. Neilson. |
| 28 $\frac{1}{4}$ | 24 $\frac{1}{2}$ | 22 $\frac{1}{2}$ | 4 $\frac{1}{2}$ | 15 | Do. | R. H. R. Brocklebank. |
| 28 $\frac{1}{4}$ | 24 $\frac{1}{2}$ | 21 | 4 $\frac{3}{4}$ | 16 $\frac{3}{4}$ | Do. | Capt. R. Meinertzhagen. |
| 28 | 24 $\frac{1}{2}$ | 24 $\frac{3}{4}$ | 4 $\frac{3}{4}$ | 18 | Do. | Dr. A. E. Herz. |
| 28 | 23 $\frac{1}{2}$ | 20 | 4 $\frac{1}{2}$ | 18 $\frac{3}{4}$ | Do. | Capt. V. C. de Crespigny. |
| 28 | 25 | 24 | 4 $\frac{1}{4}$ | 18 $\frac{1}{4}$ | Do. | G. F. Phillips. |
| 27 $\frac{3}{4}$ | 24 $\frac{1}{4}$ | 21 | 5 | 18 $\frac{3}{4}$ | Do. | C. B. C. Storey. |
| 27 $\frac{3}{4}$ | 24 $\frac{1}{4}$ | 22 $\frac{3}{4}$ | 4 $\frac{1}{4}$ | 19 $\frac{1}{4}$ | Do. | J. Anstruther. |
| 27 $\frac{3}{4}$ | 23 $\frac{3}{4}$ | 21 $\frac{3}{4}$ | 5 $\frac{1}{2}$ | 17 $\frac{1}{4}$ | Do. | Comdr. H. L. P. Herd, R.N. |
| 27 $\frac{3}{4}$ | 24 | 23 $\frac{1}{2}$ | 4 $\frac{3}{4}$ | 15 $\frac{1}{4}$ | Do. | Col. D. M. Lumsden. |
| 27 $\frac{3}{4}$ | 25 $\frac{1}{2}$ | 22 $\frac{1}{4}$ | 5 $\frac{1}{4}$ | 14 $\frac{1}{2}$ | Do. | Capt. T. H. Rivers Bulkeley. |
| 27 $\frac{3}{4}$ | 24 | 25 $\frac{1}{4}$ | 4 $\frac{1}{2}$ | 14 $\frac{1}{4}$ | Do. | F. C. Selous. |
| 27 $\frac{3}{4}$ | 23 $\frac{3}{4}$ | 23 | 5 $\frac{1}{2}$ | 23 | Do. | W. H. Levy. |
| 27 $\frac{1}{2}$ | 23 $\frac{1}{4}$ | 21 $\frac{1}{2}$ | 4 $\frac{3}{4}$ | 15 $\frac{1}{4}$ | Do. | C. Craig. |
| 27 $\frac{1}{2}$ | 23 $\frac{3}{4}$ | 15 $\frac{1}{2}$ | 4 $\frac{3}{4}$ | 20 $\frac{3}{8}$ | Do. | T. D. M. Cardeza. |
| 27 $\frac{1}{2}$ | 23 $\frac{3}{4}$ | 21 | 4 $\frac{1}{2}$ | 16 $\frac{3}{4}$ | Do. | Master of Belhaven. |
| 27 $\frac{1}{2}$ | ... | 22 | 6 | 15 $\frac{1}{2}$ | Do. | Lord Delamere. |
| 27 $\frac{1}{2}$ | 24 | 18 $\frac{3}{4}$ | 4 $\frac{1}{4}$ | 18 $\frac{1}{4}$ | Do. | Dr. Clifford Brookes. |
| 27 $\frac{1}{4}$ | 23 $\frac{3}{4}$ | 18 $\frac{1}{4}$ | 4 $\frac{5}{8}$ | 19 | Do. | Lord Alex. Thynne. |
| 27 $\frac{1}{4}$ | 23 | 21 | 4 $\frac{1}{4}$ | 14 $\frac{1}{2}$ | Do. | A. de Rothschild. |
| 27 $\frac{1}{4}$ | 22 $\frac{3}{4}$ | 23 | 5 $\frac{1}{2}$ | 15 | Do. | Major J. A. Hannyngham. |
| 27 $\frac{1}{4}$ | 23 $\frac{1}{4}$ | 21 | 4 $\frac{1}{2}$ | 16 $\frac{3}{4}$ | Do. | Percy C. Madeira. |
| 27 $\frac{1}{4}$ | 23 $\frac{1}{2}$ | 20 $\frac{1}{4}$ | 4 $\frac{3}{4}$ | 21 $\frac{1}{2}$ | Do. | Childs Frick. |
| 27 | 23 $\frac{3}{8}$ | 17 $\frac{1}{4}$ | 4 $\frac{1}{2}$ | 20 $\frac{1}{2}$ | Do. | Major C. S. Cumberland. |
| 27 | 23 $\frac{1}{4}$ | 20 | 5 | 16 $\frac{1}{2}$ | Do. | W. N. McMillan. |
| 27 | 23 $\frac{1}{2}$ | 21 $\frac{1}{2}$ | 6 | 16 $\frac{1}{4}$ | Do. | J. R. Bradley. |
| 27 | 23 $\frac{3}{8}$ | 22 | 5 $\frac{1}{4}$ | 18 | Do. | H. Twyford. |
| 27 | 23 | 20 | 5 $\frac{1}{4}$ | 13 $\frac{3}{4}$ | Do. | Lieut. E. W. Roberts, R.N. |
| 27 | 23 | 19 $\frac{1}{2}$ | 4 | 17 $\frac{3}{4}$ | Do. | Lieut. G. P. Leith, R.N. |
| 27 | 23 $\frac{1}{4}$ | 19 $\frac{1}{4}$ | 4 $\frac{1}{2}$ | 17 $\frac{1}{2}$ | Do. | Marquis Pizzardi. |
| 27 | 23 $\frac{1}{2}$ | 24 $\frac{1}{4}$ | 4 $\frac{1}{4}$ | 15 $\frac{3}{4}$ | Do. | J. A. Cox. |
| 27 | 23 $\frac{1}{2}$ | 22 $\frac{1}{2}$ | 4 $\frac{3}{4}$ | 15 $\frac{1}{2}$ | Do. | B. Dominick. |
| 27 | 23 $\frac{1}{2}$ | 21 | 4 $\frac{1}{2}$ | 15 | Do. | J. Jay White. |
| 27 | 23 | 18 $\frac{1}{4}$ | 4 $\frac{1}{2}$ | 18 $\frac{1}{2}$ | Do. | Capt. J. N. Price Wood. |
| ♀ 22 $\frac{3}{4}$ | 19 $\frac{1}{2}$ | 16 $\frac{1}{2}$ | 3 $\frac{1}{4}$ | 12 $\frac{3}{8}$ | Do. | R. E. Wemyss. |



Horns of Gnu. From Mr. F. H. Barber's specimen.

The GNU or BLACK WILDEBEEST (*Connochætes gnu*).

This southern species is the true gnu, which was formerly known to the Hottentots by that name, although, by the colonists, it is termed the black wildebeest. Its inferior size (height at shoulder about 3 ft. 10 ins.), the downward curvature of the horns at starting and their great expansion at the base, the white tail, the abundant fringe of long hair on the lower part of the chest and between the fore-legs, the upright mane, and the crest of hair on the face distinguish it from the brindled gnu. The general colour is uniform deep umber-brown, passing into black. Females are much smaller than males; and have the horns more slender and less expanded at the base.

Distribution.—The northern range of this species was approximately limited by the Vaal, or northern branch of the Orange River. At the time of the Boer War this gnu was represented by herds of a few hundred in the Orange River Colony and on Mr. C. D. Rudd's estate near Cape Town. On the plains of the latter country, as well as on the Karus of Cape Colony, it was formerly found in vast herds, generally in company with quaggas. Fierce and treacherous in disposition, it was especially characterised by its habit of indulging in grotesque capers and frolics on the approach of strangers.

| Length on front curve. | Breadth of palm. | Tip to Tip. | Locality. | Owner. |
|------------------------|------------------|-------------|---------------------|----------------------------|
| 26½ | 7¾ | 14½ | Orange River Colony | Sir Edmund G. Loder, Bart. |
| 25½ | 7½ | 21½ | Do. | Major P. A. Cox. |
| 25 | 6¾ | 15½ | Do. | A. Payne-Gallwey. |

| Length on front curve. | Breadth of palm. | Tip to Tip. | Locality. | Owner. |
|---------------------------|---------------------|------------------|---------------------|-----------------------------------|
| 24 $\frac{1}{2}$ | 8 | 16 | Orange River Colony | W. A. Simpson Hinchliffe. |
| 24 $\frac{1}{2}$ | 7 $\frac{1}{4}$ | 18 | Do. | Capt. C. Staveley. |
| 24 $\frac{1}{2}$ | 8 | 17 $\frac{1}{4}$ | Do. | Major C. D. Vaughan. |
| 24 $\frac{1}{4}$ | 7 $\frac{1}{2}$ | 19 $\frac{1}{2}$ | Do. | G. B. Plumptre. |
| 24 | 8 $\frac{1}{2}$ | 15 | Do. | Hon. Walter Rothschild. |
| 24 | 9 $\frac{1}{2}$ | 15 $\frac{1}{2}$ | Do. | Major C. L. Graham. |
| 24 | 8 $\frac{1}{4}$ | 13 $\frac{1}{4}$ | Do. | C. D. Rudd. |
| 24 | 8 | 14 | Do. | Lieut.-Col. Lord Douglas Compton. |
| 23 $\frac{1}{2}$ | 8 | 16 $\frac{1}{2}$ | Do. | E. M'Clellan. |
| 23 | 7 $\frac{1}{2}$ | 11 $\frac{1}{2}$ | Do. | Capt. V. C. de Crespigny. |
| 23 | 7 $\frac{1}{2}$ | 15 | Do. | Bloemfontein Museum. |
| 23 | 8 | 12 $\frac{1}{2}$ | Do. | R. T. Coryndon. |
| 23 | 7 $\frac{1}{4}$ | 13 $\frac{1}{2}$ | Do. | Major B. Horsbrugh. |
| 23 | 7 $\frac{3}{4}$ | 14 $\frac{1}{4}$ | Do. | B. J. Fitzherbert. |
| 22 $\frac{3}{4}$ | 7 $\frac{1}{4}$ | 15 | Do. | F. C. Selous. |
| 22 $\frac{1}{4}$ | 8 $\frac{1}{2}$ | 10 $\frac{1}{4}$ | Do. | Capt. R. Meinertzhagen. |
| 22 $\frac{3}{4}$ | 7 $\frac{5}{8}$ | 12 $\frac{1}{2}$ | Do. | Sir H. J. Goold-Adams. |
| 22 $\frac{1}{2}$ | 7 $\frac{1}{2}$ | 14 $\frac{1}{4}$ | Do. | G. L. Harrison. |
| 19 $\frac{3}{4}$ | 13 $\frac{1}{2}$ | 10 $\frac{1}{4}$ | Do. | Dr. W. P. Y. Bainbrigge. |

OWNER'S MEASUREMENTS.

| | | | | |
|------------------|-------------------|------------------|---------------------|---------------------------|
| 30 $\frac{1}{2}$ | 122 $\frac{1}{2}$ | 14 | Kalahari. | Dr. F. H. H. Guillemard. |
| 30 | 10 $\frac{1}{2}$ | 17 $\frac{1}{8}$ | ? | Mr. Justice Hopley. |
| 26 $\frac{1}{2}$ | 6 $\frac{1}{4}$ | 7 | Orange River Colony | Abe Bailey. |
| 27 $\frac{1}{2}$ | 7 | 11 | Do. | Count E. Hoyos. |
| 27 $\frac{1}{2}$ | 10 | 11 $\frac{1}{2}$ | Do. | C. S. Mann. |
| 26 $\frac{1}{4}$ | 7 | 14 | ? | Major W. Anstruther Gray. |
| 26 $\frac{1}{4}$ | 8 $\frac{1}{2}$ | 15 | Cape Colony | Grahamstown Museum. |
| 26 $\frac{1}{2}$ | ... | 11 | Orange River Colony | Abel Chapman. |
| 26 | 7 | 8 $\frac{1}{4}$ | Do. | H. A. Bryden. |
| 25 $\frac{1}{2}$ | 11 $\frac{1}{2}$ | 17 | Do. | J. L. Drège. |

¹ Circumference.



Horns of Duikerbok.

The DUIKERBOK (*Cephalophus grimmi*).

Puti, Bechuana.

Impunzi, Matabili.

Gwapi, Chinyanja.

Nagi, M'Kua.

Impungi, Swazi and Zulu.

Imputi, Basuto.

Gudda, Hausa.

Mpewo, Waganda.

Nakasha, Chila.

The Cape duiker, or 'diver,' is a southern representative of an extensive group of mostly small antelopes, confined to Africa. In all of these the muzzle is naked; face-glands of a more or less elongated form are present, as are lateral hoofs; the tail is of medium length, the knees have no tufts of long hair, and the females are provided with four teats. The horns, which are short and straight, are generally present in both sexes, but are smoother and more slender in the does than in the bucks; while in both sexes they are more or less hidden by a tuft of long hairs growing from the crown of the head. The upper cheek-teeth have low crowns, with square grinding surfaces, and the face-glands are arranged to form a bare line of pores on each side of the muzzle. The present species—the true duikerbok—is the largest member of a small group characterised by the horns (usually absent in the females) inclining upwards at a sharp angle above the plane of the profile of the nose. Other features of the sub-group are the long and pointed ears, the general yellowish fawn colour, devoid of dark markings, except a brown nose-streak. The Cape duiker, which

measures from 23 to 26 inches at the shoulder, ranges on the west as far north as Angola, and on the east to British East Africa and Somaliland, and is represented by a smaller race, *C. g. abyssinicus*, in Abyssinia. Weight about 30 lbs. Throughout its habitat the duikerbok is to be met with wherever sufficient covert exists; and its furtive, squatting, dodging habits are most aptly indicated by its name. Occurring either singly or in pairs, it strictly avoids both open plains and steep, rocky mountains. Absence of water is, however, no bar to its existence, as it thrives in the heart of the Kalahari. It is occasionally hunted with foxhounds: the flesh is moderately good.

A.—TYPICAL RACE.

| Length on front. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------|-----------------|-----------------|--------------------------|---------------------------|
| $6\frac{1}{2}$ | ... | ... | Angola . . . | E. P. Cooper. |
| $6\frac{3}{8}$ | $2\frac{1}{4}$ | $2\frac{3}{16}$ | Transvaal . . . | Dr. W. Gibson. |
| 6 | $2\frac{5}{8}$ | $3\frac{1}{4}$ | South Africa . . . | Col. J. J. Harrison. |
| 6 | $2\frac{3}{8}$ | $2\frac{3}{4}$ | Do. . . . | H. Henderson. |
| $5\frac{7}{8}$ | $1\frac{7}{8}$ | $2\frac{1}{2}$ | Do. . . . | W. A. Simpson Hinchliffe. |
| $5\frac{7}{8}$ | $2\frac{3}{4}$ | $2\frac{1}{4}$ | Do. . . . | Major H. Chamney. |
| $5\frac{3}{4}$ | 2 | $3\frac{1}{8}$ | Do. . . . | R. M'Clellan. |
| $5\frac{5}{8}$ | $2\frac{1}{2}$ | $2\frac{1}{2}$ | Do. . . . | Abe Bailey. |
| $5\frac{5}{8}$ | $2\frac{1}{4}$ | $2\frac{3}{8}$ | Do. . . . | C. S. Mann. |
| $5\frac{5}{8}$ | $1\frac{3}{8}$ | $2\frac{3}{8}$ | N.E. Rhodesia . . . | W. F. Grimes. |
| $5\frac{1}{2}$ | $2\frac{1}{8}$ | $2\frac{7}{8}$ | Selinya, Khama's country | F. C. Selous. |
| $5\frac{1}{2}$ | $2\frac{1}{4}$ | $2\frac{3}{8}$ | Cape Colony . . . | Mr. Justice Hopley. |
| $5\frac{1}{2}$ | $2\frac{1}{8}$ | $2\frac{5}{16}$ | ? | B. Senior. |
| $5\frac{1}{2}$ | $2\frac{1}{4}$ | $2\frac{1}{4}$ | Cape Colony . . . | J. B. Wheelwright. |
| $5\frac{1}{4}$ | $2\frac{1}{4}$ | $1\frac{1}{2}$ | Zululand | Major L. O. Williams. |
| $5\frac{1}{8}$ | $2\frac{1}{8}$ | 3 | S.W. Transvaal . . . | W. F. Tuthill. |
| $5\frac{1}{8}$ | 2 | $2\frac{3}{8}$ | Transvaal | H. T. and A. H. Glynn. |
| $5\frac{1}{8}$ | $2\frac{5}{16}$ | $2\frac{3}{8}$ | Cape Flats | Capt. W. Jardine. |
| 5 | 2 | $1\frac{3}{4}$ | South Africa . . . | J. J. B. Saffery. |
| 5 | $2\frac{1}{4}$ | $2\frac{1}{4}$ | Do. | G. Richards. |
| 5 | $2\frac{3}{8}$ | $2\frac{1}{4}$ | Do. | G. B. Plumptre. |
| 5 | $2\frac{1}{4}$ | $2\frac{1}{2}$ | Do. | F. C. Selous. |

Owner's measurements.

| Length on front. | Circumference. | Tip to Tip. | Locality. | Owner. |
|---------------------|-----------------|-----------------|-----------------------|---------------------|
| 5 | 2 $\frac{1}{4}$ | 2 $\frac{1}{4}$ | Angola . . . | C. H. Pemberton. |
| 5 | 2 $\frac{1}{4}$ | 2 $\frac{1}{2}$ | ? | C. C. Bowring. |
| 5 | 2 $\frac{1}{4}$ | 2 $\frac{5}{8}$ | Ngamiland . . . | Mervyn G. Williams. |
| 5 | 2 $\frac{1}{2}$ | 3 $\frac{1}{4}$ | Northern Rhodesia . . | F. Smitheman. |
| - ♀ 4 $\frac{3}{4}$ | 2 $\frac{3}{8}$ | 2 $\frac{3}{4}$ | ? | P. C. Keytel. |
| ♀ 4 | 1 $\frac{3}{4}$ | 1 $\frac{1}{4}$ | S.W. Africa . . . | Th. Rehbock. |

- Owner's measurements.

B.—ABYSSINIAN RACE (*C. grimmi abyssinicus*).

Midaku, Abyssinian.

Smaller than the Cape duiker, and agreeing in size with the crowned duiker (*C. coronatus*), this race differs from the latter by the general colour of the fur being greyish brown instead of bright yellow. Allied races occur in the Kenia and Zomba districts of Eastern Africa.

Distribution.—The highlands of Abyssinia: the East African specimens mentioned below belong to the allied races.

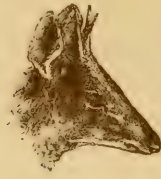
| Length on front. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------|------------------|-----------------|-----------------|-------------------------------|
| 5 $\frac{1}{4}$ | 2 $\frac{1}{8}$ | 2 | E. Africa . . . | A. de L. Long. |
| 4 $\frac{3}{4}$ | 2 $\frac{1}{4}$ | ... | Do. . . . | Abel Chapman. |
| 4 $\frac{5}{8}$ | 2 $\frac{1}{4}$ | 2 $\frac{1}{4}$ | Do. . . . | E. B. Horne. |
| 4 $\frac{1}{2}$ | 2 $\frac{1}{4}$ | 2 $\frac{3}{8}$ | Do. . . . | W. H. Lindsay. |
| 4 $\frac{1}{4}$ | 2 | 2 | Sudan . . . | Capt. P. M. Dove. |
| 4 $\frac{1}{4}$ | 2 $\frac{1}{4}$ | 3 | Abyssinia . . . | D. P. MacGillivray. |
| 4 $\frac{1}{4}$ | 2 $\frac{1}{4}$ | 1 $\frac{3}{4}$ | Do. . . . | W. F. Whitehouse. |
| 4 $\frac{1}{8}$ | 2 | 2 | Gallaland . . . | Lord Hindlip. |
| 4 $\frac{1}{8}$ | 2 $\frac{1}{8}$ | 1 $\frac{7}{8}$ | Abyssinia . . . | Major P. H. G. Powell-Cotton. |
| 4 $\frac{1}{8}$ | 2 | 1 $\frac{3}{4}$ | Do. . . . | F. Gillett. |
| 4 $\frac{1}{8}$ | 2 $\frac{2}{16}$ | 1 | E. Africa . . . | E. H. Lichfield. |
| 4 $\frac{1}{8}$ | 2 $\frac{1}{4}$ | 2 $\frac{3}{8}$ | Do. . . . | K. V. Painter. |
| 4 $\frac{1}{8}$ | 2 | 2 $\frac{1}{4}$ | Do. . . . | Sir Richard Dane. |

The CROWNED DUIKER (*Cephalophus coronatus*).

A species nearly related to the true duikerbok, and standing about 15 or 16 inches in height, of a bright yellowish fawn colour, showing a faint tinge of black.

Distribution.—West Africa.

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|----------------|----------------|-------------------|-------------------------|
| $4\frac{1}{2}$ | $2\frac{1}{4}$ | $2\frac{3}{8}$ | N. Nigeria . . . | S. M. Grier. |
| $4\frac{5}{8}$ | $2\frac{1}{4}$ | ... | Do. . . . | Capt. G. C. Kelly. |
| $4\frac{1}{2}$ | $2\frac{1}{4}$ | $2\frac{7}{8}$ | Nigeria . . . | Major J. A. Burdon. |
| $4\frac{1}{2}$ | $2\frac{3}{4}$ | $1\frac{3}{4}$ | Do. . . . | Capt. J. B. Cockburn. |
| $4\frac{3}{8}$ | $2\frac{1}{4}$ | $2\frac{1}{2}$ | Do. . . . | Capt. W. M. Fowler. |
| $4\frac{3}{8}$ | $2\frac{1}{4}$ | $1\frac{1}{2}$ | Do. . . . | G. W. Webster. |
| $4\frac{5}{16}$ | $2\frac{1}{2}$ | $1\frac{3}{8}$ | Okutu, S. Borgu . | Capt. B. R. M. Glossop. |
| $4\frac{1}{16}$ | $2\frac{1}{8}$ | $2\frac{1}{2}$ | Nigeria . . . | C. Bryant. |
| 4 | $2\frac{3}{8}$ | $3\frac{1}{2}$ | Do | F. Call. |
| 4 | 2 | $1\frac{3}{8}$ | Lokoja, Niger . | Capt. T. N. Puckle. |



Head of Blue Duiker.

The BLUE DUIKER (*Cephalophus monticola*).*Ipiti, Zulu.*

In the great majority of duikers, that is to say all except those included in the group mentioned above, the horns, which are generally present in both sexes, slope backwards either in or just below the line of the profile of the nose. The present species is included in a subgroup characterised by the smoky-brown or blackish colouring, and is especially distinguished by the rufous legs and uniformly coloured rump, the height at the shoulder being 13 inches. Weight about 8 lbs. clean.

Distribution.—Southern Africa, from the wooded districts of Cape Colony northwards to Benguela on the west, and Nyasaland on the east.

A.—TYPICAL RACE.

| Length on front. | Circumference. | Tip to Tip. | Locality. | Owner. |
|--------------------|------------------|-----------------|-----------------------|--------------------------------------|
| 2 $\frac{1}{2}$ | 1 $\frac{3}{4}$ | 1 $\frac{1}{2}$ | Tushila Plain, B.C.A. | Hon. Walter Rothschild. |
| 2 $\frac{1}{6}$ | 1 $\frac{1}{2}$ | 1 $\frac{3}{4}$ | Nyasaland . . . | D. D. Lyell. |
| 2 | 1 $\frac{1}{2}$ | 1 $\frac{1}{2}$ | Pondoland . . . | Sir Edward G. Loder, Bart. |
| 2 | ... | 1 $\frac{3}{4}$ | Natal . . . | F. C. Selous. |
| 2 | 1 $\frac{5}{8}$ | 1 $\frac{3}{4}$ | Benguela . . . | G. W. Penrice. |
| 2 | 1 $\frac{3}{4}$ | 1 $\frac{1}{4}$ | N. Rhodesia . . . | L. de Fries. |
| ♀ 1 $\frac{7}{8}$ | 1 $\frac{3}{4}$ | 1 $\frac{3}{4}$ | Nyasaland . . . | D. D. Lyell. |
| 1 $\frac{5}{8}$ | 1 $\frac{5}{8}$ | 1 $\frac{3}{4}$ | Benguela . . . | Hon. Walter Rothschild. |
| ♀ 1 $\frac{5}{16}$ | 1 $\frac{5}{16}$ | 1 $\frac{1}{8}$ | Knysna . . . | Lieut. Hon. R. O. B. Bridgeman, R.N. |
| 1 $\frac{1}{4}$ | 1 $\frac{3}{8}$ | 1 $\frac{1}{4}$ | Angola . . . | Capt. E. C. Hamilton. |

B.—SUDANI RACE (*C. monticola æquatorialis*).

| Length on front. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------|-----------------|-----------------|--------------|---------------------|
| 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$ | 1 $\frac{1}{2}$ | Sudan . . . | Capt. C. Leigh. |
| 1 $\frac{1}{8}$ | ... | 1 | Uganda . . . | Capt. H. S. Toppin. |

MAXWELL'S DUIKER (*Cephalophus maxwelli*).

This species belongs to the sub-group characterised by the smoky-brown or blackish colour. In size it is small (height at shoulder about 14 inches). The face is coloured like the back; the limbs, like the body, are greyish brown; and the rump is not parti-coloured. It was first brought to England by Col. C. Maxwell, and described by Major Hamilton Smith in 1827.

Distribution.—West Africa, from Gambia to the Gold Coast.

| Length on front. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------|-----------------|-----------------|-------------------------|-------------------------|
| 2 $\frac{1}{2}$ | 2 $\frac{3}{4}$ | 1 $\frac{3}{4}$ | Portuguese Guinea . . . | M. V. Hay. |
| 2 $\frac{1}{4}$ | 2 $\frac{1}{4}$ | 2 $\frac{1}{8}$ | Do. . . . | Viscount de Thiene. |
| 1 $\frac{5}{8}$ | 2 $\frac{1}{8}$ | 2 | Fanti | Hon. Walter Rothschild. |

The RED or NATAL DUIKER (*Cephalophus natalensis*).

Rooi-Bosch-bokje, Boer. *Msumbi*, Swazis and Malonga.
Mkumbi, Zulu. *Izikupu*, Basuto.
Chisimbi, Lower Zambesi.

This duiker is classed in another sub-group of small or medium-sized species characterised by the fulvous, rufous, or chestnut ground-colour; and is specially distinguished by its small size (height at shoulder, 18 to 19 inches) and completely uniform colouring, having no dark markings on either the face or body.

Distribution.—Natal, Transvaal, and Mashonaland (including all the forest and bush country of the East Coast), and perhaps the Lualwa River district of the Mozambique Province.

| Length on front. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------|-----------------|-----------------|--------------------|------------------------|
| -3 $\frac{7}{8}$ | 2 $\frac{3}{4}$ | 2 | ? | Abe Bailey. |
| -3 $\frac{5}{8}$ | 2 $\frac{3}{4}$ | 1 $\frac{3}{4}$ | ? | Major H. Chamney. |
| -3 $\frac{5}{8}$ | 3 $\frac{1}{4}$ | 3 $\frac{1}{4}$ | Natal | C. S. Mann. |
| 3 $1\frac{7}{8}$ | 2 $\frac{3}{8}$ | 2 $\frac{1}{4}$ | ? | J. Rosen. |
| 3 $\frac{3}{8}$ | 2 $\frac{1}{2}$ | 2 $\frac{1}{8}$ | Sabi Flats | Col. J. J. Harrison. |
| -3 $\frac{1}{4}$ | 2 $\frac{1}{2}$ | 2 | ? | P. C. Keytel. |
| -3 $\frac{1}{4}$ | 2 $\frac{7}{8}$ | 2 $\frac{3}{8}$ | ? | Abe Bailey. |
| -3 $\frac{1}{4}$ | 2 $\frac{5}{8}$ | 2 $\frac{1}{4}$ | Spitzkop | H. T. and A. H. Glynn. |
| -3 | 2 $\frac{5}{8}$ | 1 $\frac{1}{4}$ | Natal | A. F. Williams. |

- Owner's measurements.

| Length on front. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------|----------------|-------------|----------------------------|-------------------------|
| $1\frac{3}{4}$ | $2\frac{3}{4}$ | ... | N. Makualand . . . | Hon. Walter Rothschild. |
| ♀ $2\frac{3}{4}$ | $1\frac{7}{8}$ | 1 | Foot-hills of Kahlamba . . | F. Vaughan Kirby. |
| ♀ $1\frac{5}{8}$ | ... | 1 | Near Durban . . . | F. C. Selous. |

¹ Determination provisional.

The BAY DUIKER (*Cephalophus dorsalis*).

From the last species the bay duiker, together with some allied West African forms, differs by the presence of a black stripe running along the back and continued to the tail. As a species, its special characters are the dark colour of the buttocks, and the evenly haired tail, which shows no sign of a tuft, and is white below.

Distribution.—West Africa, from Sierra Leone to the Gold Coast, being replaced in the Cameruns by *C. castaneus*.

| Length on front. | Girth. | Tip to Tip. | Locality. | Owner. |
|------------------|----------------|----------------|--------------------|-----------------------------|
| $3\frac{1}{2}$ | $2\frac{1}{8}$ | 2 | West Africa . . . | Hon. Walter Rothschild. |
| $3\frac{1}{2}$ | $3\frac{1}{2}$ | $3\frac{3}{8}$ | Cameruns . . . | C. S. Mann. |
| $2\frac{7}{8}$ | $2\frac{1}{4}$ | $1\frac{1}{4}$ | Sierra Leone . . . | Brig.-Gen. P. S. Wilkinson. |

The BANDED DUIKER or ZEBRA-ANTELOPE (*Cephalophus doriae*).

The tiger-like transverse black bands on the orange ground of the back suffice to distinguish at a glance this pretty little duiker from all its kindred.

Distribution.—The interior of the West Coast of Africa from Liberia to Sierra Leone, where it is commonly known as the mountain deer.

| Length on front. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------|----------------|----------------|---------------|-------------------------------------|
| $1\frac{7}{8}$ | ... | 1 | Liberia . . . | British Museum (Dr. J. Büttikofer). |
| $1\frac{5}{8}$ | $1\frac{1}{4}$ | $1\frac{1}{4}$ | Do. . . . | Hon. Walter Rothschild. |

— Owner's measurements.



Head of Yellow-backed Duiker.

The YELLOW-BACKED DUIKER (*Cephalophus sylvicultor*).

This species is distinguished from most of the other members of the genus by its large size, coupled with its blackish colouring, and the presence of a yellowish crest on the back and a similarly coloured longitudinal patch on the rump. Height at shoulder, 34 inches. It is represented in N. Rhodesia by *C. s. coxi*, and by another race in the Ituri Forest.

Distribution.—The West Coast of Africa from Liberia to Angola, and thence eastwards through the forest-zone.

| Length on front. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------|----------------|-------------|------------------------------|----------------------------|
| 7 | 3½ | ... | Sierra Leone . . . | Major C. E. Palmer. |
| 6¾ | 3 | 3 | N.E. Rhodesia . . . | Dr. Albert von Stephani. |
| 6¾ | 3¾ | 4½ | Fanti | British Museum. |
| 6½ | 3¾ | 3½ | Luapulu River, N.E. Rhodesia | G. M. E. Leyer. |
| 6½ | 3¾ | 5 | Sierre Leone . . . | W. St. J. Oswell. |
| 6¼ | 3½ | ... | Ashanti | C. Beddington. |
| 5½ | 3¾ | 4½ | Gabun | Sir Edmund G. Loder, Bart. |
| 5 | 3¾ | 4¼ | Angola | Hon. Walter Rothschild. |
| 5 | 3¾ | 4½ | Do. | G. W. Penrice. |
| 5 | 3 | ... | N.E. Rhodesia . . . | H. Cookson. |

HARVEY'S DUIKER (*Cephalophus harveyi*).

This East African species is in size and its dark chestnut-red colour very similar to the Natal duiker, but with a dark brown or blackish blaze on the face, and the horns thick at the base and rough. *C. isaaci* is an allied species.

Distribution.—East Africa.

| Length on front. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------|-----------------|----------------|---------------------------|---|
| $3\frac{7}{8}$ | 2 | | East Africa . . . | Major H. W. A. Christie. |
| $1\frac{3}{8}$ | $3\frac{1}{4}$ | .. | Mau Forest, East Africa . | Hon. Walter Rothschild. |
| $3\frac{5}{8}$ | $2\frac{7}{8}$ | $2\frac{1}{2}$ | Do. . . | F. J. Jackson. |
| $3\frac{1}{2}$ | $2\frac{3}{4}$ | $2\frac{3}{4}$ | East Africa . . . | The late Rear-Admiral R. A. J. Montgomerie. |
| $2\frac{5}{8}$ | $3\frac{7}{16}$ | $1\frac{3}{4}$ | Do. . . | E. N. Buxton. |

- Owner's measurements.

¹ *Cephalophus isaaci*.**LEOPOLD'S DUIKER** (*Cephalophus leopoldi*).*Distribution.*—Ituri Forest.

| Length on front. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------|----------------|----------------|--------------|---------------------|
| $3\frac{1}{2}$ | $3\frac{1}{2}$ | $1\frac{7}{8}$ | Uganda . . . | Capt. H. S. Toppin. |

The RED-FLANKED DUIKER (*Cephalophus rufilatus*).

This species stands about 14 inches, and is orange-rufous in colour, with the front of the face, the dorsal stripe, and the tail and limbs bluish grey, the crest black, the under-parts paler, and the throat whitish.

Distribution.—West Africa, from Senegambia to Nigeria.

| Length on front. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------|----------------|----------------|---------------------|------------------------------------|
| $3\frac{5}{8}$ | $2\frac{1}{4}$ | 2 | N. Nigeria . . . | R. M. Blackwood. |
| $3\frac{1}{16}$ | $2\frac{7}{8}$ | $2\frac{5}{8}$ | Gambaga, Gold Coast | British Museum (Capt. W. Giffard). |
| $3\frac{3}{8}$ | $2\frac{3}{4}$ | $1\frac{1}{2}$ | Nigeria . . . | Capt. C. C. West. |
| $3\frac{1}{8}$ | $2\frac{1}{2}$ | 2 | Do. . . | Capt. P. A. Clive. |
| $3\frac{1}{8}$ | $2\frac{5}{8}$ | $4\frac{3}{8}$ | Do. . . | Hon. E. Stanley. |
| 3 | $2\frac{7}{8}$ | $1\frac{1}{2}$ | Okutu, S. Borgu . | Capt. B. R. M. Glossop. |
| $2\frac{7}{8}$ | $2\frac{1}{2}$ | $2\frac{3}{8}$ | Lagos . . . | Capt. W. A. Ross. |
| $2\frac{3}{4}$ | $2\frac{1}{2}$ | $1\frac{1}{4}$ | N. Nigeria . . . | G. W. Webster. |
| $2\frac{5}{8}$ | $2\frac{1}{4}$ | $1\frac{3}{4}$ | Lokoja, Nigeria . | Brig.-Gen. P. S. Wilkinson. |
| $2\frac{5}{8}$ | $2\frac{1}{2}$ | $1\frac{3}{4}$ | Nigeria . . . | Capt. H. V. Venables Kyrke. |
| $2\frac{5}{8}$ | $2\frac{1}{2}$ | $1\frac{1}{2}$ | Do. . . | W. D. Downes. |



Head of Beira.

The **BEIRA** (*Dorcatragus melanotis*).

Beira or *Baira*, Somali.

Although at one time classed with the gazelles, this peculiar little Somali antelope is considered to be best placed in the neighbourhood of the dik-diks. The beira is characterised by the moderately long and spike-like horns of the bucks; but its most striking peculiarity is the great size of its ears, which led its discoverer, Mr. Menges, to describe it as a species of klipspringer. Another noticeable feature is the large size of the rounded hoofs, which are supported on globular pads. In colour, the upper-parts and legs are greyish fawn, with a tinge of pink; a darker band defining the fawn from the white of the under-parts, which (the white) is continued down the inner surfaces of the limbs as far as the knees and hocks. The head, from the ears to the nose, is bright rufous. Height at shoulder about 23 inches.

Viscount Edmond de Poncins writes that "beira are good hill-climbers, and keep on rocky ground. The general shape is slender, the legs are long, the head is kept erect, the ears are very big and broad, shaped like the dik-dik's, eyes big and dark, nostrils black.

"Colour a sort of greyish blue, a bit like what we call in French *gorge-de-pigeon*, and exactly matching the colour of the ground, so, unless they are on the move, it is difficult to distinguish them. Unlike a gazelle, the tail is generally kept down. Horns resemble those of the klipspringer, but curve forward slightly more." From nose to root

of tail $32\frac{1}{4}$, height at shoulder 21 inches, horns 4 inches; weight about 20 lbs.

Distribution.—The interior of Somaliland and the upper part of the Blue Nile. The species appears to be rare and local, going about either singly or in pairs, and inhabiting the open desert. It was first made known to science in 1894.

| Length on front. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------|----------------|----------------|-----------------------|-------------------------------|
| 5 | $1\frac{3}{4}$ | $3\frac{1}{4}$ | Somaliland . . . | J. Rosen |
| $4\frac{1}{2}$ | $1\frac{1}{2}$ | ... | Do. . . . | Lord Delamere. |
| $4\frac{1}{4}$ | $1\frac{3}{4}$ | $2\frac{3}{4}$ | Northern Somaliland . | J. H. H. Dodds. |
| $4\frac{5}{8}$ | 2 | $2\frac{7}{8}$ | Abyssinia . . . | Major P. H. G. Powell-Cotton. |
| $4\frac{1}{2}$ | $1\frac{3}{4}$ | $2\frac{5}{8}$ | Northern Somaliland . | F. N. Ransford. |
| $4\frac{1}{4}$ | 2 | $2\frac{1}{2}$ | Abyssinia . . . | W. F. Whitehouse. |
| $4\frac{1}{4}$ | $1\frac{1}{2}$ | $1\frac{3}{4}$ | Somaliland . . . | A. de L. Long. |
| $4\frac{3}{4}$ | $1\frac{1}{2}$ | $2\frac{5}{8}$ | Do. . . . | Capt. R. A. M'Clymont. |
| 4 | 2 | $2\frac{1}{8}$ | French Somaliland . | Viscount Edmond de Poncins. |
| 4 | $2\frac{1}{8}$ | $2\frac{3}{4}$ | Somaliland . . . | Sir Edmund G. Loder, Bart. |
| $3\frac{3}{4}$ | $1\frac{3}{4}$ | $2\frac{1}{4}$ | Do. . . . | W. Mure. |
| $3\frac{1}{4}$ | $1\frac{3}{4}$ | $2\frac{1}{8}$ | Do. . . . | H. D. Briggs. |
| 3 | $1\frac{1}{4}$ | $2\frac{1}{4}$ | Do. . . . | P. K. Glazebrook. |

— Owner's measurements.



Skull of Beira, from specimen shot by Major P. H. G. Powell-Cotton.



Head of Salt's Dik-dik.

SALT'S DIK-DIK (*Madoqua saltiana*).

This species, the Beni Israel of the Arabs, is the typical representative of a group of tiny, slenderly built antelopes characterised by the elongated, trunk-like nose, of which the tip is almost entirely hairy, the tuft of hair on the crown of the head, the short and almost rudimentary tail, and the minute size of the lateral hoofs. In the present species the last tooth in the lower jaw lacks the third lobe found in almost all ruminants, the muzzle is but moderately developed, and the general colour yellowish or fulvous grey, scarcely more rufous on the sides than on the back. Height at the shoulder, 14 inches.

Distribution.—The Coast Range of Eastern Abyssinia.

| Length on front. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|---------------------|---------------------|----------------|-------------------|---------------------------------|
| $3\frac{1}{2}$ | $1\frac{1}{2}$ | $1\frac{3}{8}$ | ? | Hon. Walter Rothschild. |
| $3\frac{1}{2}$ | $1\frac{1}{2}$ | $1\frac{3}{8}$ | Abyssinia . . . | V. Bell. |
| 3 | 1 | 1 | Do. . . . | Sir Edmund G. Loder, Bart. |
| $1\frac{1}{3}$ | ... | $1\frac{1}{8}$ | Do. . . . | H. Boughton Leigh. |
| $2\frac{2}{3}$ | ... | $1\frac{3}{8}$ | Do. . . . | Major P. H. G. Powell-Cotton. |
| $2\frac{3}{4}$ | $1\frac{3}{4}$ | $1\frac{1}{4}$ | E. Sudan . . . | Major H. H. S. Morant. |
| $2\frac{5}{8}$ | ... | $1\frac{3}{8}$ | Abyssinia . . . | Sir Victor Brooke's Collection. |
| $2\frac{1}{2}$ | $1\frac{1}{2}$ | ... | North Kassala . . | Col. Ralph Vivian. |
| $2\frac{3}{8}$ | ... | $1\frac{5}{8}$ | ? | British Museum. |

¹ Determination provisional.



Skull of Phillips's Dik-dik.



Head of Swayne's Dik-dik.

SOMALI DIK-DIKS (*Madoqua swaynei*, *M. phillipsi*, and *M. guentheri*).*Sakáro*, Somali.

Different districts of Somaliland are inhabited by several species of dik-diks, of which three are named above. The first of these is allied to Salt's dik-dik but smaller; it inhabits the northern half of Somaliland. Phillips's dik-dik, which also occurs in Northern Somaliland, is intermediate in size between Salt's and Swayne's dik-dik, from both of which it is distinguished by having the back grey and the sides and shoulders rich rufous or cinnamon. On the other hand, Günther's dik-dik is widely different from both, being nearly allied to the undermentioned Kirk's dik-dik, from which it is distinguished by the form of the nasal bones in the skull. It inhabits the central plateau of Northern Somaliland.

Height of Swayne's dik-dik at shoulder about 14 inches.

Weight, ♂ 6 lbs.; ♀ 5 lbs.

| Length on front. | Girth. | Tip to Tip. | Owner. |
|------------------|----------------|----------------|-----------------------------|
| $1\frac{3}{8}$ | $1\frac{5}{8}$ | 2 | Col. H. D. Olivier. |
| $3\frac{1}{2}$ | $1\frac{1}{4}$ | $1\frac{5}{8}$ | J. Kenneth Foster. |
| $3\frac{1}{4}$ | $1\frac{1}{4}$ | $1\frac{3}{4}$ | W. W. Ashley. |
| $1-3\frac{1}{4}$ | ... | $1\frac{1}{4}$ | C. V. A. Peel. |
| $3\frac{1}{2}$ | $1\frac{1}{4}$ | $1\frac{1}{2}$ | Lieut.-Col. C. F. Blane. |
| $1\frac{3}{4}$ | ... | $1\frac{3}{8}$ | Abe Bailey. |
| $1\frac{3}{4}$ | $1\frac{1}{2}$ | $1\frac{3}{4}$ | A. E. Pease. |
| 3 | $1\frac{1}{4}$ | $1\frac{1}{2}$ | J. H. H. Dodds. |
| 3 | ... | 1 | Sir Edmund G. Loder, Bart. |
| -3 | ... | $1\frac{1}{4}$ | Viscount Edmond de Poncins. |

¹ *M. guentheri*.

- Owner's measurements.

| Length on front. | Girth. | Tip to Tip. | Owner. |
|------------------|----------------|----------------|-------------------------------|
| $2\frac{7}{8}$ | . | $1\frac{3}{4}$ | Major P. H. G. Powell-Cotton. |
| $2\frac{7}{8}$ | $1\frac{3}{8}$ | $1\frac{5}{8}$ | Lord Delamere. |
| $2\frac{7}{8}$ | $1\frac{1}{2}$ | $1\frac{3}{8}$ | Lord Hindlip. |
| $2\frac{11}{16}$ | $1\frac{1}{2}$ | $\frac{7}{8}$ | Lieut.-Col. E. G. Harrison. |
| $2\frac{1}{4}$ | $1\frac{1}{4}$ | $1\frac{1}{2}$ | R. E. Drake-Brockman. |
| $2\frac{11}{16}$ | 1 | 1 | T. W. H. Clarke. |
| $2\frac{11}{16}$ | $1\frac{1}{2}$ | $1\frac{1}{2}$ | A. E. Butter. |
| $2\frac{11}{16}$ | $1\frac{1}{2}$ | ... | C. Liddell. |
| $2\frac{11}{16}$ | .. | $1\frac{1}{4}$ | Major W. Anstruther Gray. |
| $2\frac{1}{2}$ | $1\frac{1}{4}$ | $1\frac{3}{8}$ | A. de L. Long. |
| $2\frac{1}{2}$ | $1\frac{1}{4}$ | $1\frac{3}{8}$ | J. C. Monteith. |
| $2\frac{1}{2}$ | $1\frac{1}{4}$ | $1\frac{3}{4}$ | Capt. A. H. Mosse. |

¹ M. phillipsi.

The following are the dimensions of a specimen of *M. guentheri* shot at Njemps by F. J. Jackson :—

Length, $23\frac{1}{4}$. Height, $15\frac{1}{4}$. Horns, $2\frac{1}{2}$. Weight, $8\frac{1}{4}$ lbs.



Kirk's Dik-dik.

KIRK'S DIK-DIK (*Madoqua kirki*).

This dik-dik belongs to a small group of species differing from the one containing *M. saltiana* by the presence of three lobes to the last tooth of the lower jaw, and likewise by the more decidedly trunk-like character of the muzzle. From the other members of the group *M. damarensis* differs by its superior size, and *M. guentheri* by the still greater development of the trunk. They belong to the sub-genus *Rhynchotragus*. Weight about 7 lbs.

Distribution.—East Africa, from Southern Somaliland to Ugogo, most numerous on the coast.

| Length on front. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------|----------------|-----------------|--------------------|-------------------------------|
| $3\frac{5}{8}$ | $1\frac{5}{8}$ | $1\frac{1}{8}$ | Rift Valley . . | C. Steuart Betton. |
| $3\frac{1}{2}$ | $1\frac{3}{4}$ | ... | East Africa . . | The late Prince P. Demidoff. |
| $3\frac{7}{16}$ | $1\frac{3}{4}$ | $1\frac{5}{8}$ | Do. . . | J. B. Wheelwright. |
| $3\frac{3}{8}$ | ... | $1\frac{1}{2}$ | Do. . . | F. C. Selous. |
| $3\frac{5}{16}$ | $1\frac{1}{2}$ | $1\frac{7}{16}$ | Uganda . . | Major P. H. G. Powell-Cotton. |
| $3\frac{1}{4}$ | $1\frac{1}{4}$ | $1\frac{1}{4}$ | East Africa . . | Hon. Walter Rothschild. |
| $3\frac{1}{4}$ | 2 | $1\frac{1}{2}$ | Do. . . | K. V. Painter. |
| $3\frac{1}{8}$ | ... | $1\frac{5}{8}$ | Do. . . | G. de P. Colvile. |
| 3 | $1\frac{1}{2}$ | $1\frac{3}{4}$ | E. of Lake Chomo . | Lord Hindlip. |

- Owner's measurements.

¹ *M. cavendishi*.

| Length on front. | Circumference. | Tip to Tip. | Locality. | Owner. |
|-------------------|----------------|----------------|--------------------|---------------------------------------|
| 3 | $1\frac{3}{4}$ | $1\frac{3}{4}$ | East Africa . . . | H. Fowler. |
| 3 | ... | $1\frac{1}{2}$ | Do. . . . | F. J. Jackson. |
| 3 | 2 | $1\frac{5}{8}$ | Do. . . . | Capt. the Hon. G. H. Douglas Pennant. |
| 3 | $1\frac{1}{2}$ | $1\frac{1}{2}$ | Do. . . . | Percy C. Madeira. |
| 3 | ... | 2 | Do. . . . | S. S. Steele. |
| $1\ 2\frac{1}{8}$ | $1\frac{3}{4}$ | $1\frac{3}{4}$ | Do. . . . | F. J. Jackson. |
| $2\frac{7}{8}$ | ... | $1\frac{3}{8}$ | Do. . . . | R. B. Muir. |
| $2\frac{7}{8}$ | ... | $1\frac{3}{8}$ | Do. . . . | E. H. Lichfield. |
| $1\ 2\frac{3}{4}$ | .. | $1\frac{3}{4}$ | Lake Baringo . . . | Rhys Williams. |

¹ M. cavendishi.

DAMARA DIK-DIK (*Madoqua damarensis*).

Characteristics mentioned under heading of the preceding species.

Distribution.—Damaraland.

| Length on front. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------|----------------|----------------|--------------------|---|
| $-3\frac{1}{4}$ | $1\frac{1}{2}$ | $1\frac{1}{2}$ | ? | P. C. Keytel. |
| -3 | ... | ... | ? | Capt. M. Jurich. |
| $-2\frac{5}{8}$ | $1\frac{5}{8}$ | $1\frac{5}{8}$ | Omararu | J. B. Wheelwright. |
| $-2\frac{5}{8}$ | $1\frac{5}{8}$ | $1\frac{5}{8}$ | Do. . . . | Capt. W. Jardine. |
| $2\frac{1}{2}$ | .. | .. | Damaraland | South African Museum. (Type specimen.) |
| $-2\frac{1}{2}$ | $1\frac{1}{2}$ | $1\frac{1}{2}$ | Do. . . . | A. Ohlsson. |
| -2 | ... | $1\frac{1}{8}$ | Angola | South African Museum. |

HEMPRICH'S DIK-DIK (*Madoqua hemprichiana*).

Further information is desirable as to the claim of this dik-dik to specific distinction.

| Length on front. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------|----------------|-----------------|-------------------|-------------------------|
| $3\frac{3}{8}$ | $1\frac{3}{8}$ | $1\frac{1}{2}$ | Basaland | Hon. Walter Rothschild. |
| $2\frac{5}{16}$ | $1\frac{3}{8}$ | $1\frac{1}{16}$ | Abyssinia | Do. |

- Owner's measurements.



Head of Oribi.

The ORIBI (*Oribia scoparia*).

Also known as *Oribia oribi*.

Inla, Swazi and Zulu. *Pulukudukamani*, Basuto.
Nakafwifwi, Chila. *Kamunda*, Barotsi and Batoka.

The oribis, grysbok, klipspringer, and their allies constitute a group of comparatively small African antelopes presenting the following characters in common. The muzzle has a naked tip, the head is devoid of a tuft of hair, large face-glands open beneath the eyes by a small aperture on each side, the tail is short or moderate, and lateral hoofs may or may not be retained. Horns are present only in the bucks, and are short, almost or quite straight, with smooth tips and ridged bases. The upper cheek-teeth have tall and narrow crowns. The oribis, which are the largest members of the group, have normal hoofs and hair, and are specially distinguished by the presence of a bare glandular spot beneath each ear, and of a large opening in the skull beneath each eye-socket. In the typical species the horns of the bucks are comparatively smooth and slender, with only their basal two inches slightly ridged; there is a black patch on the forehead between the horns; and the tail is tufted and moderately bushy, with its terminal two-thirds black. Height at shoulders, 24 to 26 inches.

Some of the specimens mentioned under this heading are probably referable to *O. cottoni* and *O. microdon*, of the Guasengishu Plateau, British East Africa, the former being a small species distinguished by

the absence of a dark frontal blaze, and the latter a large one characterised by the small size of the cheek-teeth.

Distribution.—Typically, Africa south of the Zambesi. On grassy plains this graceful little antelope is still plentiful in many districts.

| Length on front. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|---------------------|---------------------|------------------|------------------------|-----------------------------------|
| $-7\frac{1}{2}$ | $2\frac{3}{4}$ | $2\frac{5}{8}$ | Zomba, B.C.A. | D. MacAlpine. |
| $7\frac{11}{16}$ | $2\frac{11}{16}$ | $2\frac{1}{4}$ | Angola | G. W. Penrice. |
| $6\frac{1}{2}$ | ... | $2\frac{7}{8}$ | Near Ladysmith | Col. P. J. R. Crampton. |
| $-6\frac{1}{2}$ | . | $1\frac{3}{4}$ | Batoka Plateau | E. Folley. |
| $-6\frac{1}{2}$ | ... | $3\frac{1}{4}$ | ? | J. L. Drège. |
| $6\frac{1}{2}$ | $2\frac{1}{8}$ | $1\frac{1}{8}$ | N.W. Rhodesia | P. R. Ramsey. |
| $6\frac{1}{2}$ | $2\frac{1}{4}$ | ... | E. Griqualand | British Museum (J. Ff. Darling). |
| 6 | $2\frac{1}{8}$ | $2\frac{1}{4}$ | Spitzkop | H. T. and A. H. Glynn. |
| 6 | $1\frac{1}{2}$ | ... | Rhodesia | H. H. Williams. |
| 6 | 2 | $2\frac{3}{8}$ | Angola | C. H. Pemberton. |
| 6 | 2 | 4 | N.W. Rhodesia | R. E. Critchley-Salmonson. |
| $5\frac{7}{8}$ | 2 | $3\frac{11}{16}$ | Do. | T. D. M. Cardeza. |
| $5\frac{3}{4}$ | $2\frac{3}{8}$ | $2\frac{3}{8}$ | British Central Africa | J. H. Hayes. |
| $5\frac{3}{4}$ | 2 | $3\frac{1}{4}$ | N.W. Rhodesia | H. Timmins. |
| $5\frac{3}{4}$ | 2 | $2\frac{1}{4}$ | Do. | Capt. R. Meinertzhagen. |
| $5\frac{11}{16}$ | 2 | $2\frac{3}{4}$ | Do. | Lady Sarah Wilson. |
| $5\frac{5}{8}$ | 2 | $2\frac{3}{4}$ | Bengueolo | F. Smitheman. |
| $5\frac{5}{8}$ | $2\frac{1}{8}$ | $1\frac{7}{8}$ | Transvaal | F. R. N. Findlay. |
| $5\frac{5}{8}$ | 2 | $2\frac{3}{8}$ | N.W. Rhodesia | Lieut.-Col. Lord Douglas Compton. |
| $5\frac{1}{2}$ | 2 | $3\frac{1}{2}$ | Do. | Capt. H. T. Lumsden. |
| $5\frac{1}{2}$ | $1\frac{3}{4}$ | $2\frac{5}{8}$ | Do. | G. L. Harrison. |
| $5\frac{1}{4}$ | $1\frac{1}{4}$ | $3\frac{3}{8}$ | Do. | Capt. G. A. Swinton Home. |
| $5\frac{1}{8}$ | $1\frac{3}{4}$ | $3\frac{3}{8}$ | Do. | R. A. M'Clymont. |

- Owner's measurements.



Skull of Abyssinian Oribi. Shot by Major P. H. G. Powell-Cotton.

The ABYSSINIAN ORIBI (*Oribia montana*).

Fäckō and *Miwaka*, Abyssinian.

Mori or *Lōyīk*, Dinka.

Very similar in most characters to the typical species, but with a shorter and less bushy tail, the tip of which has only a few sparse black hairs. Height at shoulder, 22 to 23 inches. These antelopes are shy and rarely seen in the open, preferring the thick bush and long grass. If disturbed, they go at a great pace with their heads quite close to the ground. The flesh is good.

A male weighing 38 lbs. stood $22\frac{1}{2}$ inches at the shoulder.

Distribution.—Abyssinia and Bogosland, with part of the Sudan, to Uganda and British East Africa.

| Length on front. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------|----------------|----------------|----------------------|-------------------------------|
| $6\frac{1}{2}$ | $2\frac{1}{4}$ | $3\frac{1}{4}$ | Near Mount Elgon . | Capt. H. C. S. Ashton. |
| $6\frac{1}{2}$ | $2\frac{1}{2}$ | $2\frac{3}{4}$ | E. Africa . . . | Col. Max. C. Fleischmann. |
| $6\frac{3}{8}$ | $2\frac{3}{8}$ | 2 | Near Lake Victoria . | G. J. Muir. |
| $6\frac{1}{4}$ | $2\frac{1}{4}$ | 3 | E. Africa . . . | H. B. Tate. |
| $6\frac{1}{4}$ | $2\frac{1}{4}$ | $2\frac{1}{4}$ | Do. . . . | C. Bower Ismay. |
| $6\frac{1}{8}$ | 2 | 3 | Do. . . . | W. A. Baird. |
| 6 | $2\frac{3}{8}$ | $2\frac{7}{8}$ | Do. . . . | H.R.H. the Duke of Connaught. |
| 6 | $2\frac{1}{4}$ | $2\frac{3}{4}$ | Do. . . . | Capt. M. L. Pears. |
| 6 | 2 | $2\frac{7}{8}$ | Do. . . . | W. N. McMillan. |
| $5\frac{3}{4}$ | $2\frac{1}{4}$ | $2\frac{1}{2}$ | Do. . . . | E. B. Horne. |
| $5\frac{3}{4}$ | $2\frac{1}{4}$ | 2 | Do. . . . | G. de P. Colville. |

| Length on front. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------|----------------|----------------|---------------------|----------------------------|
| $5\frac{1}{2}$ | 2 | $1\frac{1}{8}$ | Kordofan . . . | E. A. T. Bayley. |
| $5\frac{1}{2}$ | $1\frac{3}{4}$ | $3\frac{1}{4}$ | East Africa . . . | Duke of Medinaceli. |
| $5\frac{1}{2}$ | 2 | $2\frac{1}{4}$ | Do. . . . | F. C. Selous. |
| $5\frac{1}{2}$ | $2\frac{1}{2}$ | $2\frac{3}{4}$ | Do. . . . | Capt. R. Meinertzhagen. |
| $5\frac{1}{2}$ | $2\frac{1}{4}$ | 2 | Do. . . . | A. G. Murray Smith. |
| $5\frac{1}{2}$ | 2 | $2\frac{1}{8}$ | Do. . . . | Sir Richard Dane. |
| $5\frac{1}{2}$ | $2\frac{5}{8}$ | $2\frac{1}{4}$ | Do. . . . | H. Fowler. |
| $5\frac{3}{4}$ | $2\frac{1}{4}$ | $2\frac{1}{2}$ | Do. . . . | A. de Rothschild. |
| $5\frac{1}{4}$ | 2 | $2\frac{1}{4}$ | Abyssinia . . . | Abe Bailey. |
| $5\frac{3}{4}$ | $2\frac{1}{4}$ | 2 | East Africa . . . | H. S. Keating. |
| $5\frac{1}{4}$ | 2 | $2\frac{3}{4}$ | Sudan | Maj.-Gen. B. T. Mahon. |
| $5\frac{1}{4}$ | $2\frac{1}{4}$ | $2\frac{3}{4}$ | East Africa . . . | J. Jay White. |
| $5\frac{1}{4}$ | $2\frac{1}{4}$ | $3\frac{1}{4}$ | Do. . . . | N. Flower. |
| $5\frac{1}{4}$ | $1\frac{3}{4}$ | $2\frac{1}{8}$ | Dinder Valley . . . | C. D. Eyre. |
| $5\frac{1}{4}$ | $2\frac{1}{8}$ | 3 | East Africa . . . | W. Neilson. |
| $5\frac{1}{4}$ | $2\frac{3}{4}$ | $2\frac{1}{4}$ | Do. . . . | B. Dominick. |
| $5\frac{1}{4}$ | $2\frac{1}{4}$ | $2\frac{5}{8}$ | Do. . . . | F. Santos Saurez. |
| $5\frac{1}{4}$ | 2 | $2\frac{3}{4}$ | Do. . . . | Stephenson R. Clarke. |
| $5\frac{1}{4}$ | $2\frac{1}{2}$ | $2\frac{1}{2}$ | Do. . . . | R. de la Huerta. |
| 5 | $2\frac{1}{2}$ | $2\frac{1}{4}$ | Gallaland . . . | Lord Hindlip. |
| 5 | 2 | $2\frac{1}{2}$ | Abyssinia . . . | Sir Edmund G. Loder, Bart. |
| 5 | $2\frac{1}{4}$ | $2\frac{3}{8}$ | Gondokoro . . . | Capt. P. Garrard. |
| 5 | 2 | $2\frac{5}{8}$ | East Africa . . . | Mrs. Percy C. Madeira. |
| 5 | 2 | $2\frac{1}{8}$ | Setit | Earl of Sefton. |
| 5 | 2 | $1\frac{7}{8}$ | East Africa . . . | H. G. Watson. |
| 5 | 2 | $2\frac{1}{4}$ | Do. . . . | N. C. Cockburn. |
| 5 | $2\frac{1}{8}$ | $2\frac{5}{8}$ | Do. . . . | E. H. Lichfield. |
| 5 | $2\frac{3}{8}$ | $2\frac{1}{4}$ | Do. . . . | H. Sampson. |
| 5 | 2 | 2 | Do. . . . | Capt. J. N. Price Wood. |
| $4\frac{7}{8}$ | 2 | $2\frac{1}{8}$ | Do. . . . | O. Mosley. |
| $4\frac{7}{8}$ | 2 | 2 | Do. . . . | W. H. Lindsay. |
| $4\frac{7}{8}$ | $2\frac{1}{2}$ | $2\frac{1}{2}$ | Do. . . . | A. Saunderson. |
| $4\frac{7}{8}$ | $2\frac{1}{4}$ | 2 | Do. . . . | Kenneth Crossley. |
| $4\frac{7}{8}$ | 2 | $2\frac{1}{4}$ | Do. . . . | Duke of Peneranda. |

The GAMBIAN ORIBI (*Oribia nigricaudata*).

A species very close to the Abyssinian oribi, but of smaller size, greyer, and with a distinct black tip to the tail, as in the Cape species. Height at shoulder, 21 inches.

Distribution.—The open country of Senegal and Nigeria.

| Length on front. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------|----------------|----------------|------------------|----------------------|
| $4\frac{3}{4}$ | $2\frac{1}{2}$ | $2\frac{1}{4}$ | Lake Chad . . . | Capt. S. B. B. Dyer. |
| $4\frac{5}{8}$ | $1\frac{3}{4}$ | $2\frac{1}{2}$ | N. Nigeria . . . | Capt. T. N. Puckle. |
| $4\frac{1}{2}$ | $1\frac{3}{4}$ | $2\frac{1}{4}$ | Nigeria . . . | G. B. Scott. |
| $4\frac{3}{16}$ | $1\frac{7}{8}$ | 2 | Do. . . . | F. Dwyer. |
| $4\frac{1}{8}$ | $1\frac{3}{4}$ | $2\frac{1}{4}$ | Do. . . . | H. V. Bastow. |
| 4 | $1\frac{3}{4}$ | 2 | Do. . . . | Capt. H. A. Porter. |
| 4 | ... | $2\frac{3}{4}$ | Do. . . . | Major J. A. Burdon. |
| 4 | $1\frac{3}{4}$ | $2\frac{3}{4}$ | Do. . . . | S. C. Peck. |

HAGGARD'S ORIBI (*Oribia haggardi*).

Taya, Swahili.

Nsilatso, Uganda.

Distinguished from other oribis by the stouter horns, which are strongly ridged for rather more than the basal half of their length. Height at shoulder about 24 inches.

Distribution.—The coast districts of East Africa in the neighbourhood of Lamu. Some of the undermentioned specimens may belong to allied species.

| Length on front. | Circumference. | Tip to Tip. | Locality. | Owner. |
|-----------------------------|----------------|----------------|----------------------------|-------------------------------|
| $6\frac{3}{8}$ | $2\frac{1}{8}$ | 3 | East Africa . . . | Hon. Walter Rothschild. |
| 6 | $2\frac{1}{4}$ | $3\frac{1}{4}$ | Do. . . . | Capt. R. Meinertzhagen. |
| 6 | $2\frac{1}{2}$ | $2\frac{1}{8}$ | Do. . . . | H. Twyford. |
| $5\frac{3}{4}$ | $2\frac{1}{2}$ | 2 | Tana Valley . . . | Capt. J. Harington. |
| $5\frac{5}{8}$ | $2\frac{1}{4}$ | $2\frac{1}{4}$ | East Africa . . . | C. Craig. |
| $5\frac{1}{2}$ | ... | $2\frac{7}{8}$ | Do. . . . | C. C. Bowring. |
| $5\frac{1}{2}$ | $2\frac{1}{4}$ | $3\frac{1}{8}$ | Do. . . . | L. Aylmer. |
| $5\frac{3}{8}$ | 2 | $2\frac{5}{8}$ | Tana Valley . . . | Capt. Mackenzie Murray. |
| $5\frac{3}{8}$ | ... | $2\frac{7}{8}$ | East Africa . . . | Dr. A. Paget. |
| ² $5\frac{1}{8}$ | $2\frac{3}{8}$ | $2\frac{7}{8}$ | Uganda . . . | Major P. H. G. Powell-Cotton. |
| ¹ $5\frac{1}{8}$ | $2\frac{1}{4}$ | 2 | East Central Africa . . | Hon. Walter Rothschild. |
| ¹ $5\frac{1}{8}$ | $1\frac{1}{2}$ | $2\frac{3}{8}$ | North end of Lake Albert . | Col. Trevor Ternan. |
| $5\frac{1}{8}$ | 2 | $3\frac{1}{4}$ | East Africa . . . | Col. A. Colville. |

¹ Determination provisional.

² *Oribia cottoni*, weight 35 lbs.



Head of Suni.

The SUNI (*Neotragus moschatus*).

The elegant little antelopes included in the genus *Neotragus* are near relatives of the oribis, from which they are distinguished by the absence of a naked glandular patch below the ear and the want of lateral hoofs. They are further characterised by the horns being directed backwards nearly or quite in the plane of the face, as also by the large size of the open spaces in the skull in front of the sockets of the eyes, and the breadth of the nasal bones. In the present species the horns, although short, project behind the back of the head, are somewhat elevated above the plane of the forehead, and strongly and closely ridged, while the colour of the upper parts, inclusive of the tail-tip, is greyish brown. Height at shoulder, 13 to 14 inches.

Distribution.—Zanzibar, two adjacent islets, and mainland coast from Kilimanjaro to Mozambique.

| Length on front. | Circumference. | Tip to Tip. | Locality. | Owner. |
|---------------------------|----------------|----------------|----------------|---------------------------------|
| $3\frac{2}{3}$ | $1\frac{7}{8}$ | $1\frac{5}{8}$ | Zanzibar . . . | Dr. Albert von Stephani. |
| $3\frac{3}{8}$ | ... | $1\frac{5}{8}$ | Do. . . . | F. C. Selous. |
| $3\frac{1}{4}$ | $1\frac{1}{2}$ | 2 | Do. . . . | Sir John Kirk. |
| $3\frac{1}{4}$ | $1\frac{3}{8}$ | $1\frac{1}{2}$ | Do. . . . | British Museum (Capt. Speke). |
| $3\frac{1}{4}$ | $1\frac{1}{4}$ | $1\frac{1}{2}$ | Do. . . . | British Museum (Sir John Kirk). |
| $2\frac{1}{2}\frac{2}{5}$ | $1\frac{1}{4}$ | $1\frac{3}{4}$ | Kikuyu | Master of Belhaven. |
| $2\frac{1}{2}\frac{2}{5}$ | $1\frac{3}{8}$ | $1\frac{3}{8}$ | Do. . . . | F. J. Jackson. |
| $2\frac{5}{8}$ | $1\frac{3}{8}$ | $1\frac{3}{4}$ | Do. . . . | J. R. Bradley. |
| $2\frac{5}{8}$ | $1\frac{1}{4}$ | $1\frac{3}{4}$ | Zanzibar . . . | Sir Victor Brooke's Collection. |

- Owner's measurements.



Skull and Horns of Livingstone's Suni.

LIVINGSTONE'S SUNI (*Neotragus livingstonianus*).*Lumswi*, Shupanga.*Inhlengana*, Amatonga.

Distinguished from the preceding species by its slightly superior dimensions (height at shoulder 14 to 15 inches), the longer and thicker horns, more rufous coloration, and the blackish upper surface of the tail.

Two specimens killed by F. Vaughan Kirby measured—

| | Male. | Female. |
|---|-----------------------|-----------------------|
| Extreme length over all, tip of nose to end of tail | 27 $\frac{1}{8}$ ins. | 25 $\frac{3}{4}$ ins. |
| Length of tail | 3 $\frac{1}{2}$ " | 3 " |
| Perpendicular shoulder-height | 14 $\frac{1}{4}$ " | 13 $\frac{1}{8}$ " |
| Girth behind the shoulder | 14 $\frac{1}{8}$ " | 13 $\frac{5}{8}$ " |

Distribution.—South-East Africa, from Mozambique to Zululand; the race from Zululand being distinguished as *N. livingstonianus zuluensis*.

| Length on front. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------|-----------------|-----------------|----------------------|-------------------------------|
| 5 | 1 $\frac{7}{8}$ | 2 $\frac{1}{4}$ | ? | J. Rosen. |
| 4 $\frac{5}{8}$ | 2 | 2 $\frac{1}{4}$ | ? | Abe Bailey. |
| 4 $\frac{1}{2}$ | 1 $\frac{3}{4}$ | 1 $\frac{1}{2}$ | Zambesia | Rowland Ward. |
| 4 $\frac{1}{2}$ | ... | 1 $\frac{3}{4}$ | ? | F. J. Newnham. |
| 4 $\frac{3}{8}$ | 2 $\frac{1}{8}$ | ... | Gungunyana's country | British Museum (H. T. Glynn). |
| 4 $\frac{2}{10}$ | ... | 1 $\frac{7}{8}$ | Inhambani . . . | Major J. Stevenson-Hamilton. |

— Owner's measurements.

| Length on front. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------|-----------------|-----------------|-----------------|--|
| 4 $\frac{1}{8}$ | ... | 1 | Delagoa Bay . . | F. C. Selous. |
| 4 $\frac{1}{4}$ | 1 $\frac{7}{8}$ | 1 $\frac{3}{4}$ | Do. . . | Lieut.-Col. Lord Douglas Comp- ton. |
| 3 $\frac{7}{8}$ | 1 $\frac{1}{4}$ | 1 $\frac{1}{4}$ | Do. . . | Capt. R. Meinertzhagen. |
| 3 $\frac{1}{4}$ | 1 $\frac{1}{2}$ | 1 $\frac{3}{4}$ | Zambesia . . . | Sir Edmund G. Loder, Bart. |
| 3 $\frac{3}{4}$ | 1 $\frac{1}{4}$ | 2 $\frac{1}{4}$ | Delagoa Bay . . | W. E. Butcher. |
| 3 $\frac{1}{2}$ | 1 $\frac{3}{4}$ | 2 $\frac{1}{8}$ | Do. . . | Hon. Walter Rothschild. |
| 3 $\frac{1}{2}$ | 1 $\frac{1}{4}$ | 1 $\frac{7}{8}$ | Do. . . | G. Bateman. |

- Owner's measurements.



Head of Grysbok, from a specimen shot by Mr. F. C. Selous:

The GRYSBOK (*Rhaphiceros melanotis*).

Isikupi, Basuto.

Kulu, Makua.

Timba, Chila.

From the other members of the oribi group the grysbok and its cousin the steinbok are readily distinguished by the absence of a bare ear-patch, and by horns rising nearly vertically from the skull, in which the open spaces below the eye-sockets are unusually small. Grysbok retain the lateral hoofs, which have disappeared in steinbok, and are further distinguished by the fur showing a large admixture of white, instead of being uniformly coloured. Height at shoulder, 22 inches. Weight, 24 lbs.

Distribution.—South Africa, extending as far north as the Zambesi and Mozambique.

| Length on front. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|---------------------|---------------------|-----------------|-------------------|---|
| 4 $\frac{7}{8}$ | 1 $\frac{1}{2}$ | 1 $\frac{7}{8}$ | Cape Colony . . . | R. A. Cooper. |
| 4 $\frac{5}{8}$ | ... | 1 $\frac{3}{4}$ | Do. . . . | P. C. Keytel. |
| 4 $\frac{1}{2}$ | 1 $\frac{3}{4}$ | 2 | Do. . . . | Lieut.-Col. H. J. G. Lloyd. |
| 4 | ... | ... | Caledon, C.C. . . | South African Museum. |
| 3 $\frac{5}{8}$ | 1 $\frac{3}{4}$ | 2 $\frac{1}{4}$ | Knysna, C.C. . . | Lieut. Hon. R. O. B. Bridgeman, R.N. |
| 3 $\frac{9}{16}$ | 1 $\frac{3}{4}$ | 1 $\frac{7}{8}$ | Cape Colony . . . | F. C. Selous. (See illustration.) |
| 3 $\frac{1}{4}$ | 1 $\frac{1}{2}$ | 2 $\frac{3}{8}$ | Knysna | Mr. Justice Hopley. |
| 3 $\frac{1}{4}$ | 1 $\frac{1}{2}$ | 1 $\frac{3}{4}$ | Do. | Sir H. J. Goold-Adams. |

— Owner's measurements.



Skull and Horns of Record Steinbok, the property of Mr. D. Mackintosh.

The STEINBOK (*Rhaphiceros campestris*).

Isha, Swahili.

Ingaina, Swazi.

Timba, Barotsi and Batoka.

Impulupudi, Basuto.

Phuduhudu, Bechuana.

Umgwena, Matabili.

As mentioned above, this species is at once distinguished from the grysbok by the absence of the lateral hoofs and the uniform colour of the coat. The general tint of the latter is bright sandy rufous, becoming richer on the head, with a black horseshoe-mark on the crown. Height at withers about 22 inches. Weight about 25 lbs.

Distribution.—Africa south of the Zambesi on the east, and the Cuneni on the west, the north-east Transvaal race being separated as *R. c. capricornis*, and coming nearer to the Nyasa *R. c. neumanni*, which is paler. Probably owing to its small size, the steinbok has managed to escape the fate that has befallen so many South African antelopes. Wherever the traveller journeys on the veldt, he is almost certain to meet this species, which may be regarded as the most familiar game-animal of the plains. Like many of its kindred, it is independent of water, and can exist in the heart of the Kalahari, where water may not occur for fifty miles.

| Length on front. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------|----------------|-----------------|-----------------------|-------------------------------|
| $7\frac{1}{2}$ | $1\frac{3}{4}$ | $3\frac{1}{2}$ | Cape Colony . . . | D. Mackintosh. |
| $-7\frac{3}{8}$ | ... | ... | Do. . . . | C. S. Mann. |
| $-6\frac{7}{8}$ | ... | ... | Graaf Reinett, C.C. . | American National Collection. |
| 6 | 2 | $2\frac{1}{4}$ | N. Transvaal. . . | Hon. Walter Rothschild. |
| $5\frac{7}{8}$ | $1\frac{3}{4}$ | $1\frac{5}{8}$ | East Africa . . . | Percy C. Madeira. |
| $-5\frac{7}{8}$ | $1\frac{7}{8}$ | 3 | ? | Mr. Justice Hopley. |
| $5\frac{1}{2}$ | ... | $2\frac{5}{8}$ | Near Middelburg . . | Capt. E. H. E. Abadie. |
| $-5\frac{3}{4}$ | $1\frac{3}{4}$ | $1\frac{7}{8}$ | ? | J. Whitaker. |
| $-5\frac{5}{8}$ | $1\frac{3}{4}$ | $2\frac{1}{4}$ | ? | Major H. Chamney. |
| $-5\frac{5}{8}$ | 2 | $1\frac{1}{4}$ | ? | Abe Bailey. |
| $-5\frac{5}{8}$ | $1\frac{3}{4}$ | $1\frac{3}{4}$ | Griqualand, West . . | A. F. Williams. |
| $15\frac{1}{2}$ | ... | $1\frac{9}{16}$ | Kimberley . . . | F. C. Selous. |
| $5\frac{7}{16}$ | ... | $2\frac{5}{8}$ | Cape Colony . . . | British Museum. |
| $5\frac{3}{8}$ | 2 | $1\frac{3}{4}$ | East Africa . . . | E. Gedge. |
| $5\frac{3}{8}$ | $2\frac{1}{4}$ | $2\frac{3}{8}$ | ? | G. B. Plumptre. |
| $5\frac{1}{4}$ | ... | $1\frac{1}{2}$ | South Africa . . . | J. B. Neilson. |
| $5\frac{1}{4}$ | $1\frac{7}{8}$ | $2\frac{3}{8}$ | Do. . . . | Lord R. Wellesley. |
| $5\frac{1}{4}$ | $1\frac{7}{8}$ | ... | East Africa . . . | E. H. Sinkinson. |
| $5\frac{1}{4}$ | $1\frac{3}{4}$ | $2\frac{1}{8}$ | Cape Colony . . . | E. M'Clellan. |
| $5\frac{1}{8}$ | $1\frac{3}{4}$ | $1\frac{7}{8}$ | East Africa . . . | F. C. Selous. |
| $5\frac{1}{8}$ | $1\frac{3}{4}$ | $1\frac{7}{8}$ | Do. . . . | Mrs. Percy C. Madeira. |
| 5 | $1\frac{5}{8}$ | $2\frac{1}{8}$ | Do. . . . | Lieut. E. W. Roberts, R.N. |

- Owner's measurements.

¹ Killed with hounds.



Skull and Horns of Sharpe's Steinbok.

SHARPE'S STEINBOK (*Rhaphiceros sharpei*).

This species has the white-speckled chestnut coat of a grysbok, coupled with the feet of a steinbok. The crown of the head has a crescent-shaped black mark; and the large ears are very sparsely haired externally.

Distribution.—Nyasaland, Barotsiland, and Northern Rhodesia; represented by a local race, *R. s. colonicus*, in North-eastern Transvaal.

| Length on front. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|---------------------|---------------------|----------------|---------------------|-------------------------|
| 2 | ... | ... | N.W. Rhodesia . . | Dr. A. H. B. Kirkman. |
| 2 | ... | ... | Do. . . | C. S. Mann. |
| $1\frac{3}{4}$ | $1\frac{7}{16}$ | ... | Near Tete . . | D. D. Lyell. |
| $1\frac{9}{16}$ | $1\frac{1}{2}$ | $1\frac{1}{2}$ | Lower Shire River . | Lord William Percy. |
| $1\frac{1}{2}$ | $1\frac{1}{2}$ | $1\frac{1}{2}$ | N.W. Rhodesia . . | Marquis Pizzardi. |
| $1\frac{1}{4}$ | $1\frac{1}{4}$ | $1\frac{3}{8}$ | Do. . . | R. C. Forster. |
| $1\frac{1}{4}$ | $1\frac{1}{4}$ | $1\frac{5}{8}$ | N.E. Rhodesia . . | Hon. Walter Rothschild. |
| $1\frac{1}{4}$ | $1\frac{7}{8}$ | $1\frac{3}{8}$ | B.C. Africa . . | L. H. Cripps. |
| $1\frac{1}{16}$ | $1\frac{1}{4}$ | $2\frac{1}{8}$ | N.W. Rhodesia . . | L. De Fries. |

— Owner's measurements.



Head of Klipspringer.

The KLIPSPRINGER (*Oreotragus saltator*).*Alakud*, Somali.*Chipomco*, Chilala.*Chinkomo*, Chinyanja.*Ingululu*, Makalaka.*Ikumi*, Basuto.*Klipbok*, Boer.*Ligoka*, Zulu and Swazi.*Njereri*, Batoka.*Sassa*, Abyssinian.*Ngombani*, Chila.

Not only from the other members of the oribi group, but from antelopes of all kinds, the agile little klipspringer, or "rock-jumper," is distinguished by the peculiar conformation of its hoofs and the structure of its hair. The former are large, cylindrical, blunt, and so situated in regard to the rest of the limb that the animal walks on what corresponds to their tips in other antelopes, the whole hoof thus rising vertically from the ground. As regards the hair, this may best be compared with that of the musk-deer, having the same brittle, pithy structure. Lateral hoofs are retained; the tail is reduced to a mere rudimentary stump; and the horns of the bucks rise nearly vertically from the head, with a slight forward curvature, and are ringed for their basal third. The hairs are olive-grey tipped with golden yellow, thus giving the characteristic speckled hue to the coat. Height at shoulder from about 20 to 22 inches.

Distribution.—Mountainous and rocky districts in South and East Africa, from the Cape northwards to Abyssinia. The species has been divided into several local races of which the typical southern one has relatively short ears, with little black on them. To bag

these exceedingly active and shy little antelopes, the sportsman, especially in the steep mountain ranges of Cape Colony, must be prepared for a long and difficult stalk under a blazing sun. Except when they require its hair for stuffing saddles, the Boers leave the klipspringer alone; which is doubtless one reason that it is still comparatively abundant. Its venison is of excellent quality.

| Length on front. | Circumference. | Tip to Tip. | Locality. | Owner. |
|---------------------|------------------|-------------------|------------------------|-------------------------------|
| -5 $\frac{7}{8}$ | ... | ... | Bechuanaland . . . | C. S. Mann. |
| 5 $\frac{1}{2}$ | 2 $\frac{3}{8}$ | 1 $\frac{5}{8}$ | P.E. Africa . . . | Hon. Walter Rothschild. |
| 5 $\frac{3}{8}$ | 2 | 2 $\frac{1}{8}$ | N.E. Rhodesia . . . | Dr. F. O. Stoehr. |
| 4 $\frac{3}{4}$ | 1 $\frac{3}{4}$ | 2 $\frac{3}{8}$ | East Africa . . . | Capt. W. B. Brook. |
| 4 $\frac{3}{4}$ | 2 | 2 $\frac{1}{2}$ | Nyasaland . . . | J. Stewart Wells. |
| 4 $\frac{5}{8}$ | 2 | 2 $\frac{1}{2}$ | East Africa . . . | Capt. J. N. Price Wood. |
| 4 $\frac{1}{2}$ | 2 $\frac{5}{16}$ | 2 $1\frac{1}{10}$ | Witberg, Cape Colony . | H. A. Bryden. |
| 4 $\frac{1}{2}$ | 2 $\frac{1}{2}$ | 2 $\frac{1}{2}$ | ? | Capt. J. Harington. |
| 4 $\frac{1}{2}$ | 2 | 3 $\frac{1}{4}$ | East Africa . . . | E. Gedge. |
| 4 $\frac{1}{2}$ | 2 $\frac{1}{4}$ | 2 $\frac{1}{8}$ | B.C. Africa . . . | E. Homer. |
| 4 $\frac{7}{16}$ | 2 $\frac{1}{8}$ | 2 $\frac{1}{8}$ | E. Mashonaland . . . | F. C. Selous. |
| 4 $\frac{3}{8}$ | 1 $\frac{3}{4}$ | 2 $\frac{1}{4}$ | Matabililand . . . | Hon. R. A. Ward. |
| 4 $\frac{3}{8}$ | 2 $\frac{1}{4}$ | 2 $\frac{1}{4}$ | N.E. Rhodesia . . . | H. Cookson. |
| 4 $\frac{3}{8}$ | 2 $\frac{1}{4}$ | 2 $\frac{1}{8}$ | East Africa . . . | W. H. Levy. |
| - ♀ 4 $\frac{3}{8}$ | 2 | 1 $1\frac{3}{10}$ | Do. . . . | Capt. R. S. Hart. |
| 4 $\frac{1}{4}$ | 2 | 2 $\frac{1}{2}$ | Do. . . . | S. S. Steel. |
| 4 $\frac{1}{4}$ | 2 $\frac{1}{4}$ | 2 $\frac{5}{8}$ | Somaliland . . . | R. A. M'Clymont. |
| 4 $\frac{1}{4}$ | 2 | 2 $\frac{1}{4}$ | Do. . . . | A. de L. Long. |
| 4 $\frac{1}{8}$ | 2 | 2 $\frac{1}{2}$ | Do. . . . | Sir Edmund G. Loder, Bart. |
| 4 $\frac{1}{8}$ | 2 $\frac{1}{2}$ | 1 $\frac{3}{4}$ | North Nyasaland . . . | James Yule. |
| 4 $\frac{1}{8}$ | 2 $\frac{1}{4}$ | 2 $\frac{1}{2}$ | East Africa . . . | A. Fowler. |
| 4 | 2 $\frac{1}{8}$ | 2 | Do. . . . | E. H. Lichfield. |
| 4 | 2 | 1 $\frac{1}{4}$ | Do. . . . | G. C. Napier. |
| 4 | 1 $\frac{7}{8}$ | 2 | Sudan . . . | Major H. H. S. Morant. |
| 3 $\frac{7}{8}$ | 1 $\frac{7}{8}$ | 2 $\frac{1}{4}$ | Abyssinia . . . | Major P. H. G. Powell-Cotton. |
| ♀ 3 $\frac{1}{4}$ | 1 $\frac{3}{4}$ | 2 | East Africa . . . | Stephenson R. Clarke. |

- Owner's measurements.



Frontlet and Horns of the Waterbuck.

The WATERBUCK (*Cobus ellipsiprymnus*).

Chuzu, Chilala and Chizenga.

Kring-gaat, Boer.

Li Tumogha, Matabili.

Mukulo, Chila.

M'dongoma or *Matutwi*, Barotsi.

Kuru, Swahili.

Tumoga, Bechuana.

Na'Toro, M'Kua.

The waterbucks and their smaller allies the kobs, together with the reedbucks and vaal rhebok, constitute a well-defined group of large or medium-sized African antelopes presenting the following characteristics. They have the muzzle naked, rudimentary face-glands, a moderately long tail, well-developed lateral hoofs, and the horns confined to the bucks. In shape and size the horns are variable, being either long or medium, but never spirally twisted, and always with smooth tips, below which they are ridged; usually they are at first inclined somewhat backwards, after which they are curved upwards and more or less forwards, although they may have a sinuous curvature, and in the vaal rhebok are straight. The upper cheek-teeth are tall and narrow. In the waterbucks and kobs, which include the largest representatives of the

group, there are no naked patches on the head below the ears, the tail is comparatively long, with a slight terminal tuft, and the lateral hoofs are large. A characteristic feature of the skull is the presence of a deep hollow in the forehead. From its allies the true or common waterbuck is recognisable at a glance by the elliptical white ring on the buttocks, which extends downwards to the thighs. Height at shoulder from 48 to 53 inches. Weight about 360 lbs. clean.

Distribution.—Africa north of the Limpopo along the eastern coast region as far as the Shebeyli River in Somaliland; thus including Nyasaland and British and German East Africa. Never, apparently, very abundant, this handsome antelope has had its range much curtailed of late years. Its present strongholds are the districts between the Sabi and Zambesi, the affluents of the latter, and the Chobi, Okavango, and other rivers above Lake Ngami. White waterbuck, with eyes of normal colour, are common on the Guasu Nyero, near the Lorian swamp, British East Africa.

| Length on front. | Circumference. | Tip to Tip. | Locality. | Owner. |
|-------------------|------------------|------------------|-----------------------------|---------------------------------|
| 36 $\frac{1}{4}$ | 8 $\frac{3}{4}$ | 20 $\frac{1}{4}$ | Delagoa Bay . . . | American National Collection. |
| -35 $\frac{1}{4}$ | 9 | 14 | ? | Mr. Justice Hopley. |
| -34 $\frac{1}{2}$ | ... | ... | Limpopo Valley, S.E. Africa | H. T. and A. H. Glynn. |
| 33 $\frac{1}{2}$ | 9 $\frac{1}{4}$ | 21 $\frac{1}{2}$ | Do. | Hon. Walter Rothschild. |
| 33 | 8 $\frac{3}{4}$ | 22 $\frac{3}{4}$ | Nyasaland . . . | Capt. R. Meinertzhagen. |
| 33 | 9 $\frac{3}{8}$ | 11 $\frac{1}{2}$ | Mashonaland . . . | British Museum (F. C. Selous). |
| 33 | 8 $\frac{3}{4}$ | 24 | Do. . . . | J. G. Millais. |
| -33 | 8 $\frac{3}{4}$ | 17 $\frac{1}{4}$ | Do. . . . | A. Ohlsson. |
| -33 | 10 | 25 | P.E. Africa . . . | C. S. Mann. |
| 32 $\frac{3}{4}$ | 9 $\frac{3}{4}$ | 21 $\frac{3}{8}$ | South Africa . . . | Sir Victor Brooke's Collection. |
| 32 $\frac{3}{8}$ | 8 $\frac{3}{4}$ | 25 $\frac{1}{4}$ | N. Transvaal . . . | Major F. W. Jarvis. |
| 32 $\frac{1}{2}$ | 9 $\frac{1}{2}$ | 29 $\frac{1}{2}$ | Barotsiland . . . | R. T. Coryndon. |
| 31 $\frac{3}{4}$ | 9 $\frac{1}{4}$ | 24 | Zululand . . . | Major L. O. Williams. |
| 31 $\frac{3}{4}$ | 8 $\frac{1}{4}$ | 22 $\frac{1}{2}$ | P.E. Africa . . . | British Museum (Rowland Ward). |
| -31 $\frac{3}{4}$ | 8 $\frac{1}{4}$ | 21 $\frac{7}{8}$ | North of Pungwe . . . | Count E. Hoyos. |
| 31 $\frac{1}{2}$ | 9 $\frac{1}{4}$ | 13 $\frac{1}{4}$ | P.E. Africa . . . | J. Pinto Leite. |
| -31 $\frac{1}{2}$ | 9 | 17 | ? | Abe Bailey. |
| 31 $\frac{1}{4}$ | 9 | 16 | East Africa . . . | A. Saunderson. |
| 31 $\frac{1}{4}$ | 10 $\frac{1}{8}$ | 13 $\frac{5}{8}$ | Pungwe . . . | Earl of Dunmore. |
| 31 $\frac{1}{4}$ | 9 $\frac{5}{8}$ | 19 $\frac{1}{4}$ | South Africa . . . | Sir Edmund G. Loder, Bart. |
| 31 | 9 $\frac{1}{2}$ | 22 | Zululand . . . | R. D. Talbot. |

Owner's measurements.

| Length on front. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------|-----------------|-----------------|--------------------|-----------------------------------|
| 31 | $8\frac{3}{4}$ | 32 | Zambesia . . . | R. H. Storey. |
| 31 | $9\frac{1}{2}$ | 22 | Mashonaland . . . | F. C. Selous. |
| $30\frac{3}{4}$ | $9\frac{1}{2}$ | 27 | E.C. Africa . . . | C. E. Dashwood. |
| $30\frac{3}{4}$ | $9\frac{1}{4}$ | $24\frac{1}{4}$ | Ngamiland . . . | Mervyn G. Williams. |
| $30\frac{3}{4}$ | 8 | $23\frac{1}{4}$ | Pungwe . . . | Lieut.-Col. Lord Douglas Compton. |
| $30\frac{1}{2}$ | $8\frac{3}{4}$ | 25 | B.C. Africa . . . | S. Robins. |
| 29 | 9 | 10 | P.E. Africa . . . | R. Elliott-Cooper. |
| 29 | $8\frac{1}{2}$ | $32\frac{3}{4}$ | Do. . . . | Rhys Williams. |
| 29 | $9\frac{1}{2}$ | 26 | Do. . . . | E. Gedge. |
| 29 | 9 | $23\frac{3}{4}$ | S.E. Africa . . . | R. E. Critchley-Salmonson. |
| 29 | $9\frac{1}{2}$ | $16\frac{1}{2}$ | East Africa . . . | Col. W. H. Williams. |
| $28\frac{3}{4}$ | $8\frac{3}{4}$ | $16\frac{3}{4}$ | Rhodesia . . . | C. W. Adams. |
| $28\frac{3}{4}$ | $8\frac{1}{2}$ | 23 | Lake Baringo . . . | H. Hyde-Baker. |
| $28\frac{3}{4}$ | $8\frac{1}{2}$ | $8\frac{1}{2}$ | P.E. Africa . . . | R. A. M'Clymont. |
| $28\frac{3}{4}$ | $10\frac{1}{2}$ | $13\frac{1}{4}$ | Rhodesia . . . | Dr. Sauer. |
| $28\frac{1}{2}$ | $10\frac{1}{2}$ | $22\frac{1}{2}$ | Do. . . . | W. Harcourt Webb. |
| $28\frac{1}{2}$ | 10 | $15\frac{1}{2}$ | S.E. Africa . . . | H. W. Elliott. |
| 28 | $9\frac{3}{4}$ | $15\frac{1}{2}$ | East Africa . . . | G. F. Phillips. |
| $27\frac{3}{4}$ | $8\frac{1}{4}$ | $18\frac{1}{4}$ | Do. . . . | Capt. M. L. Pears. |
| $27\frac{3}{4}$ | 8 | 18 | Do. . . . | W. Neilson. |
| $27\frac{3}{4}$ | $8\frac{1}{4}$ | $15\frac{3}{4}$ | P.E. Africa . . . | G. H. Asslin. |
| $27\frac{3}{4}$ | 8 | 18 | Somaliland . . . | A. E. Butter. |

- Owner's measurements.



Skull and Horns of Defassa Waterbuck.

The DEFASSA or SING-SING WATERBUCK (*Cobus defassa*).

Defassa, Abyssinian.

Gürümes, Galla.

Nsama, Waganda.

Tambiir, Dinka.

Katambou, Sudani.

Kuru, Swahili.

Distinguished from the typical waterbuck by the general presence of a large white patch on the lower part of the buttocks, instead of a white elliptical ring extending higher up. Several local races of this species have been named. First, the West African or sing-sing (*C. d. unctuosus*), of Senegal, Nigeria, etc., characterised by its rufous colour and the small amount of white in the region of the eye. Second, Crawshay's defassa (*C. d. crawshayi*), from British Central Africa, with a dusky coloration and shorter horns. Third, the Angola defassa (*C. d.*

penricci), from the interior of Benguela, Angola, in which the colour is so dark as to appear almost black at a distance. Then follows the typical Abyssinian defassa (*C. d. typicus*), from Western Abyssinia, but generally stated to extend through Sennar, Kordofan, and the valley of the White Nile to Uganda, and British and German East Africa. The ears are longer and more pointed, and there is more white in the region of the eye than in the other races; the general colour being rufous. This race has, however, been split into four, among which are *C. d. matschiei* of Lake Abaya and *C. d. ugandæ*, of Uganda; the latter having the finest horns of all.

A.—ABYSSINIAN DEFASSA (*C. defassa typicus*).

| Length on front. | Circumference. | Tip to Tip. | Locality. | Owner. |
|-------------------------------|------------------|------------------|--------------------------|-------------------------------|
| 36 $\frac{3}{4}$ | 9 $\frac{3}{8}$ | 36 | Nr. Lake Albert Edward . | A. F. R. Wollaston. |
| 36 $\frac{3}{4}$ | 9 | 20 $\frac{1}{2}$ | Do. | F. A. Knowles. |
| 36 $\frac{3}{4}$ | 8 $\frac{1}{2}$ | 19 $\frac{1}{2}$ | Semliki Valley . . . | Duke of Peneranda. |
| ¹ 35 $\frac{1}{2}$ | 10 $\frac{1}{2}$ | 22 $\frac{1}{2}$ | Uganda . . . | Capt. de Courcy Ireland. |
| 34 $\frac{3}{8}$ | 9 $\frac{1}{2}$ | 35 $\frac{1}{2}$ | Semliki Valley . . . | G. G. Longden. |
| 34 $\frac{3}{8}$ | 10 $\frac{1}{8}$ | 18 $\frac{1}{4}$ | Edward Nyanza . . . | Major P. H. G. Powell-Cotton. |
| 34 $\frac{1}{4}$ | 10 $\frac{1}{4}$ | 23 $\frac{1}{2}$ | Semliki Valley . . . | Hon. G. Legge. |
| 34 $\frac{1}{4}$ | 9 $\frac{1}{2}$ | 31 $\frac{1}{4}$ | Uganda . . . | Douglas M'Douall. |
| 34 $\frac{3}{8}$ | 8 $\frac{3}{4}$ | 20 $\frac{1}{4}$ | Toru, Uganda . . . | British Museum. |
| 33 $\frac{1}{2}$ | 9 $\frac{3}{4}$ | 17 | Congo . . . | Major P. H. G. Powell-Cotton. |
| -33 $\frac{1}{2}$ | ... | ... | Bahr-el-Ghazal . . . | A. L. Butler. |
| 33 | 9 | 31 $\frac{1}{2}$ | East Africa . . . | J. Jay White. |
| 32 $\frac{3}{4}$ | 9 | 18 $\frac{3}{4}$ | Uganda . . . | H. Twyford. |
| 32 $\frac{1}{2}$ | 8 $\frac{1}{4}$ | 27 $\frac{3}{4}$ | Semliki . . . | Col. R. Bright. |
| 32 $\frac{1}{2}$ | 8 $\frac{3}{4}$ | 25 $\frac{3}{4}$ | Bahr-el-Ghazal . . . | Sir Robert Harvey, Bart. |
| 32 $\frac{1}{2}$ | 9 | 18 $\frac{3}{4}$ | Do. . . . | Capt. E. P. Blencowe. |
| 32 $\frac{1}{2}$ | 8 $\frac{1}{2}$ | 18 | Sudan . . . | Capt. P. M. Dove. |
| 32 $\frac{1}{4}$ | 8 $\frac{3}{8}$ | 30 | East Africa . . . | Baron M. de Rothschild. |
| 32 $\frac{1}{4}$ | 8 $\frac{3}{4}$ | 24 $\frac{3}{4}$ | Dinder Valley . . . | C. E. Russell. |
| 32 $\frac{1}{4}$ | 8 | 20 $\frac{1}{2}$ | Sudan . . . | Maj.-Gen. B. T. Mahon. |
| 32 $\frac{3}{8}$ | 9 | 19 $\frac{1}{2}$ | Edward Nyanza . . . | Mrs. P. H. G. Powell-Cotton. |
| 32 | 9 | 20 | Sudan . . . | Major C. S. Cumberland. |
| 32 | 9 $\frac{3}{4}$ | 22 | Semliki . . . | R. de la Huerta. |
| 31 $\frac{3}{4}$ | 8 $\frac{3}{4}$ | 16 $\frac{1}{2}$ | Sudan . . . | Capt. J. P. V. Hawkesley. |
| 31 $\frac{1}{2}$ | 8 | 15 $\frac{1}{4}$ | Do. . . . | F. W. Greswolde-Williams. |

- Owner's measurements.

¹ In collection of Sir Hy. E. M. James.

| Length on front. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------|------------------|------------------|----------------|----------------------------------|
| 31 $\frac{3}{4}$ | 8 | 20 $\frac{3}{4}$ | Sudan | S. H. Whitbread. |
| 31 $\frac{3}{4}$ | 9 | 21 | Semliki Valley | Major R. A. Markham. |
| 31 $\frac{1}{4}$ | 9 $\frac{1}{2}$ | 21 | Gondokoro | Capt. A. W. Jennings Bramly. |
| 31 $\frac{1}{4}$ | 10 $\frac{1}{4}$ | 22 $\frac{3}{4}$ | East Africa | E. H. Lichfield. |
| 31 $\frac{1}{4}$ | 9 $\frac{3}{4}$ | 11 $\frac{3}{4}$ | Do. | Capt. G. A. Swinton Home. |
| 31 $\frac{1}{4}$ | 10 | 26 $\frac{1}{4}$ | Semliki Valley | D. Carruthers. |
| 31 | 9 | 20 | East Africa | B. Dominick. |
| 31 | 8 $\frac{1}{2}$ | 17 $\frac{1}{2}$ | Sudan | Earl of Kingston. |
| 31 | 8 $\frac{1}{2}$ | 14 $\frac{1}{4}$ | Do. | Lieut.-Col. J. W. Yardley. |
| 30 $\frac{3}{4}$ | 8 $\frac{1}{2}$ | 34 | Do. | W. F. Wailes-Fairbairn. |
| 30 $\frac{3}{4}$ | 11 | 28 $\frac{1}{2}$ | East Africa | W. N. McMillan. |
| 30 $\frac{3}{4}$ | 10 | 12 $\frac{1}{4}$ | Do. | Duke of Alba. |
| 30 $\frac{3}{4}$ | 10 $\frac{1}{4}$ | 20 $\frac{1}{4}$ | Do. | H. Sampson. |
| 30 $\frac{3}{4}$ | 8 $\frac{1}{2}$ | 24 | Dinder Valley | Lord Villiers. |
| 30 $\frac{1}{2}$ | 8 $\frac{3}{4}$ | 21 | ? | N. E. Waterfield. |
| 30 $\frac{1}{2}$ | 10 | 16 | East Africa | H. G. Watson. |
| 30 $\frac{1}{2}$ | 8 $\frac{1}{2}$ | 17 $\frac{1}{2}$ | Sudan | W. D. Roberts. |
| 30 $\frac{1}{2}$ | 9 $\frac{1}{4}$ | 15 $\frac{1}{2}$ | Do. | Major F. F. Carroll. |
| 30 $\frac{1}{2}$ | 8 $\frac{3}{4}$ | 25 | East Africa | Earl of Warwick. |
| 30 $\frac{1}{2}$ | 9 $\frac{3}{4}$ | 16 | Do. | Capt. H. C. S. Ashton. |
| 30 $\frac{1}{2}$ | 8 $\frac{1}{4}$ | 19 $\frac{1}{2}$ | Sudan | Major R. M. Sanders. |
| 30 $\frac{1}{4}$ | 8 | 19 $\frac{1}{2}$ | Do. | W. Mure. |
| 30 | 9 | 18 | Do. | G. Grey. |
| 30 | 8 $\frac{1}{4}$ | 18 | Do. | R. M'D. Hawker. |
| 30 | 8 $\frac{1}{2}$ | 21 | Do. | Capt. G. S. Nickerson. |
| 30 | 9 | 12 | East Africa | Duke of Medinaceli. |
| 30 | 9 $\frac{1}{2}$ | 18 | Do. | Sutton Timmis. |
| 30 | 8 | 10 $\frac{1}{4}$ | Do. | H. Fowler. |
| 30 | 8 $\frac{1}{4}$ | 21 $\frac{1}{4}$ | Sudan | C. C. Branch. |
| 29 $\frac{3}{4}$ | 9 $\frac{1}{2}$ | 14 $\frac{1}{2}$ | East Africa | S. S. Steele. |
| 29 $\frac{3}{4}$ | 9 $\frac{1}{4}$ | 20 $\frac{1}{4}$ | Do. | A. G. Murray Smith. |
| 29 $\frac{3}{4}$ | 8 $\frac{1}{2}$ | 21 $\frac{1}{2}$ | Do. | F. C. Havemeyer. |
| 29 $\frac{3}{4}$ | 8 $\frac{3}{4}$ | 15 $\frac{1}{4}$ | Sudan | Major A. J. B. Percival. |
| 29 $\frac{1}{2}$ | 8 $\frac{1}{4}$ | 17 | Do. | Capt. C. Leigh. |
| 29 $\frac{1}{2}$ | 8 $\frac{1}{4}$ | 18 $\frac{3}{4}$ | Do. | Capt. the Hon. M. P. Macnaghten. |
| 29 $\frac{1}{2}$ | 9 $\frac{1}{2}$ | 18 $\frac{3}{4}$ | Do. | Capt. J. G. A. Massy. |

| Length on front. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------|----------------|-------------|-------------------|---------------------------|
| 29½ | 10 | 20 | East Africa . . . | O. Mosley. |
| 29½ | 8¾ | 15 | Do. . . . | W. Sewall. |
| 29½ | 10 | 15½ | Do. . . . | Capt. M. L. Pears. |
| 29½ | 9 | 17¾ | Do. . . . | A. Vonwiller. |
| 29½ | 9½ | 10¾ | Do. . . . | G. de P. Colville. |
| 29½ | 9 | 22 | Sudan | Major C. P. B. Wood. |
| 29½ | 7¾ | 33 | Do. . . . | Major the Hon. H. Fraser. |
| 29½ | 9½ | 24 | Do. . . . | Capt. P. M. Larken. |
| 29½ | 9¾ | 19 | Do. . . . | Norman B. Smith. |
| 29½ | 9 | 21½ | Do. . . . | A. Robinson. |
| 29½ | 8½ | 23½ | Do. . . . | C. D. Eyre. |
| 29½ | 9 | 17 | East Africa . . . | Kenneth Crossley. |
| 29½ | 9½ | 17 | Do. . . . | Duke of Alba. |

B.—RHODESIAN DEFASSA (C. defassa crawshayi).

Idcitiwi, Barotsi.

Ingonduma, Matoko.

| Length on front. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------|----------------|-------------|---------------------|-------------------------------|
| 29 | 9 | 22 | Lake Mweru . . . | Hon. Walter Rothschild. |
| 27¾ | 8½ | 20 | Do. . . . | C. G. Leslie. |
| 27½ | 8 | 16¾ | Do. . . . | K. C. North. |
| 27 | 9½ | 17½ | Do. . . . | H. E. Hambro. |
| 27 | 9¾ | 12 | Do. . . . | Capt. J. F. Laycock. |
| 26½ | 8¾ | 13¾ | Do. . . . | Capt. L. E. H. Molyneux-Seel. |
| 26½ | 9 | 13½ | B.C. Africa . . . | L. H. Cripps. |
| 26 | 7¾ | 15 | N.W. Rhodesia . . . | G. L. Harrison. |
| 26 | 8½ | 16½ | Do. . . . | J. Ripley. |
| 25½ | 9½ | 15 | Do. . . . | W. F. Wailes Fairbairn. |
| 25½ | 9½ | 21 | Do. . . . | Capt. A. L. Godman. |
| 25½ | 9½ | 11½ | Do. . . . | Capt. L. C. Brodie. |
| 25½ | 7½ | 14¾ | Do. . . . | R. Campbell Heathcote. |
| 25 | 8½ | 19½ | Do. . . . | Sir Randolph Baker, Bart. |

C.—WESTERN DEFASSA, or SING-SING (*C. defassa unctuosus*).*Doddko* and *Gumbasa*, Hausa.*Sing-sing*, Gambian.

Height at shoulder, 47 to 48 ins.

| Length on front. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------|----------------|-------------|--------------|------------------------------------|
| 31½ | 10½ | 19¾ | Sierra Leone | C. Cary Barnard. |
| 29½ | 7½ | 23 | Nigeria | Brig.-Gen. P. S. Wilkinson. |
| 29½ | 8½ | 17½ | Do. | R. Marmon. |
| 28½ | 8½ | 19¼ | Do. | A. C. Aubin. |
| 28½ | 8 | 18¾ | Do. | Capt. H. T. G. Moore. |
| 28 | 8 | 17½ | Sierra Leone | Major W. Gillman. |
| 27¾ | 8 | 15 | Gambia | H. North. |
| 27½ | 8½ | 17½ | Nigeria | W. F. Gowers. |
| 27½ | 7½ | 12 | Do. | Lady Constance Stewart Richardson. |
| 27 | 8 | 14½ | Do. | Capt. W. H. Wilkin. |

D.—ANGOLA DEFASSA (*C. defassa penricei*).

| Length on front. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------|----------------|-------------|-----------|-------------------------|
| 29 | 8¾ | 18½ | Benguela | G. W. Penrice. |
| 28½ | 8¾ | 20 | Do. | E. P. Cooper. |
| 28½ | 8½ | 11½ | Do. | A. Ohlsson. |
| 25½ | 8¾ | 10¾ | Do. | W. C. Neilson. |
| 24½ | 8 | 9½ | Do. | Hon. Walter Rothschild. |

- Owner's measurements.



Head of Mrs. Gray's Kob.

MRS. GRAY'S KOB (*Cobus maria*).

With this species we come to the smaller waterbucks, or kobs; the present animal being distinguished by the long slender doubly curved horns, ridged nearly to the tips, and the blackish-brown body-colour of the old bucks. This dark colour is relieved by a whitish patch in front of the withers, the yellowish-white ears, a yellowish-white patch in front of and behind each eye, and the yellowish muzzle, chin, and lower part of the throat. The limbs and much of the underparts are wholly dark-coloured. Height at shoulder about 38 inches. The young males and females of all ages are chestnut-coloured.

Distribution.—The swamps bordering the White Nile and its tributaries.

| Length on front. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------|----------------|-------------|--------------------|----------------------------|
| 33½ | ... | ... | Sudan . . . | Lieut. W. Scott-Hill, R.N. |
| 32½ | 7½ | 16½ | Bahr-el-Ghazal . . | Abe Bailey. |

— Owner's measurements.

| Length on front. | Circumference. | Tip to Tip. | Locality. | Owner. |
|-------------------|----------------|------------------|---|------------------------------|
| 32 | $6\frac{7}{8}$ | ... | Near Junction of Bahr-el-Gebel and White Nile | Major H. N. Dunn. |
| -31 $\frac{1}{4}$ | $7\frac{3}{4}$ | 18 $\frac{1}{2}$ | Bahr-el-Ghazal . . | Sir W. Garstin. |
| 31 $\frac{1}{8}$ | $6\frac{3}{4}$ | 11 $\frac{3}{4}$ | Do. . . | Norman B. Smith. |
| 30 $\frac{3}{4}$ | 7 | 21 $\frac{1}{4}$ | Do. . . | Capt. A. H. Vivian. |
| 30 $\frac{5}{8}$ | 7 | 14 | Do. . . | Capt. H. Gordon. |
| 30 $\frac{1}{2}$ | 7 | 9 | Do. . . | R. A. Colvin. |
| 30 $\frac{1}{4}$ | 7 | 14 $\frac{3}{4}$ | Bahr-el-Zaref . . | Capt. C. E. Hills. |
| 29 $\frac{3}{4}$ | $6\frac{1}{2}$ | 10 $\frac{1}{4}$ | White Nile . . | Capt. P. M. Dove. |
| 29 $\frac{3}{4}$ | $7\frac{5}{8}$ | 17 $\frac{3}{4}$ | Do. . . | Countess of Sefton. |
| 29 $\frac{3}{4}$ | $6\frac{1}{4}$ | 12 | Do. . . | Hon. Walter Rothschild. |
| 29 $\frac{1}{2}$ | $7\frac{1}{4}$ | 16 | Do. . . | C. H. Goschen. |
| 29 $\frac{1}{4}$ | $7\frac{1}{8}$ | 19 $\frac{1}{4}$ | Do. . . | Capt. A. W. Jennings Bramly. |
| -29 $\frac{1}{8}$ | $6\frac{1}{2}$ | 13 $\frac{3}{4}$ | Do. . . | Capt. P. E. Vaughan. |
| 29 | $7\frac{3}{4}$ | 12 $\frac{3}{4}$ | Do. . . | Col. E. G. T. Bainbridge. |
| 29 | 7 | 16 | Tonga Island, White Nile | Major W. Hayes-Sadler. |
| 28 $\frac{1}{2}$ | $7\frac{1}{2}$ | 20 $\frac{1}{4}$ | Sudan . . . | Major H. H. S. Morant. |
| -28 $\frac{1}{2}$ | $7\frac{3}{4}$ | 18 $\frac{7}{8}$ | Do. . . | Count M. Keglevich. |
| 28 $\frac{1}{4}$ | $6\frac{5}{8}$ | 15 $\frac{1}{4}$ | Do. . . | G. Blaine. |
| 28 $\frac{1}{4}$ | $6\frac{5}{8}$ | 19 $\frac{1}{2}$ | Do. . . | S. E. H. Giles. |
| 28 | $6\frac{3}{4}$ | 14 $\frac{3}{4}$ | Do. . . | E. C. Crispin. |
| 28 | $7\frac{1}{4}$ | 18 $\frac{3}{4}$ | Do. . . | S. J. Burton. |
| 28 | 7 | 19 $\frac{3}{4}$ | Do. . . | Earl of Sefton. |
| 27 $\frac{3}{4}$ | $6\frac{3}{4}$ | 21 $\frac{1}{2}$ | Bahr-el-Ghazal . . | Major R. M. Sanders. |
| 27 $\frac{3}{4}$ | $7\frac{3}{4}$ | 17 $\frac{1}{2}$ | White Nile . . | Sir Robert Harvey, Bart. |

- Owner's measurements.



Head of White-eared Kob.

WHITE-EARED KOB (*Cobus leucotis*).

Hamaraia dyl, Sudani.
Kala, Niam-Niam.

Teel, Dinka and Shooli.
Kul and *Wail*, Djeng.

The old bucks of this smaller species are of the same blackish-brown colour as those of *C. maria*, but have no light patch in front of the withers, and are further distinguished by the ears, a large patch extending from the same to surround each eye, the muzzle, chin, upper portion of the throat, the under-parts, and portions of the inner and front surfaces of the limbs being pure white. The direction of the hair on the middle line of the back is reversed from the loins instead of from the middle of the back. Young bucks and females are red. Height at shoulder about 34 or 35 inches.

Distribution.—The region of the Upper Nile, including the Sobat, Bahr-el-Ghazal, and their tributaries.

| Length on front. | Circumference. | Tip to Tip. | Locality. | Owner. |
|-------------------------------|-----------------|------------------|--------------------|--------------------------|
| ¹ 24 $\frac{3}{4}$ | 7 $\frac{1}{4}$ | 11 | Bahr-el-Ghazal . . | Capt. J. P. V. Hawksley. |
| 23 $\frac{1}{4}$ | 6 $\frac{1}{4}$ | 12 $\frac{1}{4}$ | Do. . . | Major A. J. B. Percival. |

¹ Determination provisional.

WHITE-EARED KOB

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| Length on front. | Circumference. | Tip to Tip. | Locality. | Owner. |
|-------------------|-----------------|------------------|----------------------|------------------------------------|
| 23 $\frac{1}{4}$ | 6 $\frac{1}{4}$ | 10 $\frac{3}{4}$ | White Nile . . . | C. Bulpett. |
| 23 | 6 $\frac{1}{2}$ | 10 | Do. . . . | Capt. A. H. Vivian. |
| 23 | 6 $\frac{1}{4}$ | 11 $\frac{3}{4}$ | Bahr-el-Ghazal . . . | Sir Robert Harvey, Bart. |
| 22 $\frac{2}{3}$ | 7 $\frac{1}{2}$ | 15 $\frac{1}{4}$ | White Nile . . . | Capt. G. L. Cameron. |
| -22 $\frac{1}{4}$ | 7 | 6 $\frac{5}{8}$ | Do. . . . | Dr. Albert von Stephani. |
| 22 | 6 $\frac{1}{2}$ | 10 | Do. . . . | F. W. Greswolde-Williams. |
| 21 $\frac{3}{4}$ | 6 $\frac{1}{2}$ | 13 $\frac{1}{2}$ | Do. . . . | Major J. H. Rivers. |
| 21 $\frac{3}{4}$ | 6 $\frac{1}{2}$ | 9 $\frac{3}{4}$ | Do. . . . | E. C. Crispin. |
| 21 $\frac{3}{4}$ | 6 $\frac{1}{4}$ | 7 $\frac{1}{2}$ | Do. . . . | P. M. Tottenham. |
| 21 $\frac{1}{2}$ | 7 $\frac{1}{4}$ | 12 $\frac{1}{4}$ | Do. . . . | Maj.-Gen. B. T. Mahon. |
| 21 $\frac{1}{2}$ | 6 $\frac{3}{4}$ | 12 | Do. . . . | R. M'D. Hawker. |
| 21 $\frac{1}{2}$ | 6 $\frac{1}{2}$ | 7 | Do. . . . | C. Bower Ismay. |
| 21 $\frac{1}{2}$ | 6 | 9 $\frac{1}{4}$ | Do. . . . | C. C. Branch. |
| 21 $\frac{1}{2}$ | 6 $\frac{3}{4}$ | 7 $\frac{1}{2}$ | Do. . . . | Major W. F. Sweny. |
| 21 $\frac{1}{4}$ | 7 $\frac{1}{2}$ | 12 $\frac{1}{4}$ | Do. . . . | E. D. H. Tollemache. |
| 21 $\frac{1}{4}$ | 6 | 13 $\frac{3}{4}$ | Do. . . . | Capt. G. Stewart. |
| 21 $\frac{1}{4}$ | 6 $\frac{7}{8}$ | 11 | Do. . . . | Major W. Hayès-Sadler. |
| 21 $\frac{1}{4}$ | 6 $\frac{1}{4}$ | 8 | Do. . . . | Major R. M. Sanders. |
| 21 $\frac{1}{4}$ | 6 $\frac{1}{2}$ | 8 $\frac{1}{2}$ | Do. . . . | Capt. H. R. Headlam. |
| -21 $\frac{1}{8}$ | 6 | 12 $\frac{1}{4}$ | Do. . . . | Count M. Keglevich. |
| 21 | 6 $\frac{3}{4}$ | 10 $\frac{1}{2}$ | Do. . . . | R. A. Colvin. |
| 21 | 7 $\frac{1}{4}$ | 14 $\frac{1}{4}$ | Do. . . . | Capt. H. D. Pearson. |
| 21 | 6 $\frac{1}{2}$ | 10 | Do. . . . | Capt. G. S. Nickerson. |
| 21 | 6 $\frac{1}{4}$ | 13 $\frac{3}{4}$ | Do. . . . | C. Logan. |
| 21 | 6 | 10 | Do. . . . | C. C. Tower. |
| 21 | 6 $\frac{1}{2}$ | 8 $\frac{3}{8}$ | Do. . . . | Capt. G. F. Pridham. |
| 20 $\frac{3}{4}$ | 6 $\frac{1}{2}$ | 7 $\frac{1}{2}$ | Do. . . . | Capt. B. W. Y. Danford. |
| 20 $\frac{3}{4}$ | 7 | 10 | Do. . . . | G. Chetwynd. |
| 20 $\frac{1}{4}$ | 6 | 8 $\frac{1}{4}$ | Do. . . . | Major H. N. Dunn. |
| 20 $\frac{3}{4}$ | 6 | 9 $\frac{3}{4}$ | Do. . . . | British Museum (Major H. N. Dunn). |
| 20 $\frac{3}{4}$ | 6 $\frac{1}{2}$ | 11 $\frac{1}{4}$ | Do. . . . | Capt. C. S. Timins. |
| 20 $\frac{1}{4}$ | 7 | 7 | Do. . . . | W. N. McMillan. |

- Owner's measurements.

| Length on front. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------|-----------------|------------------|----------------|--------------------------------|
| 20 $\frac{1}{2}$ | 7 | 12 | White Nile . . | Lieut. W. B. Drury, R.N. |
| 20 $\frac{1}{2}$ | 6 $\frac{1}{4}$ | 11 | Do. . . | A. L. Butler. |
| 20 $\frac{1}{2}$ | 7 | 11.15 | Do. . . | Prince Henry of Liechtenstein. |
| 20 $\frac{1}{4}$ | 6 $\frac{1}{4}$ | 10 | Do. . . | B. Chew. |
| 20 $\frac{1}{4}$ | 7 | 7 $\frac{1}{2}$ | Do. . . | Capt. R. B. Airey. |
| 20 | 6 $\frac{3}{8}$ | 10 $\frac{1}{2}$ | Do. . . | Norman B. Smith. |

- Owner's measurements.

VAUGHAN'S KOB (*Cobus vaughani*).

Nearly allied to the last, but the dark areas of the old bucks bright foxy red, much as in Buffon's kob. The red extends on to the bases of the ears, and there is rather less white on the face than in the latter species.

Distribution.—The south-western districts of the Bahr-el-Ghazal province.

| Length on front. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------|-----------------|------------------|--------------------|-------------------------|
| 21 $\frac{1}{2}$ | 7 $\frac{1}{4}$ | 9 $\frac{1}{2}$ | Bahr-el-Ghazal . . | H. St.-C. Garrood. |
| 20 $\frac{1}{4}$ | 6 $\frac{1}{2}$ | 12 | Do. . . | Capt. P. M. Dove. |
| 20 | 6 $\frac{3}{4}$ | 9 $\frac{3}{8}$ | Do. . . | Major F. F. Carroll. |
| 19 $\frac{1}{4}$ | 7 | 11 $\frac{1}{2}$ | Do. . . | Capt. P. E. Vaughan. |
| 18 $\frac{1}{2}$ | 6 $\frac{3}{4}$ | 7 | Do. . . | Major J. L. J. Conry. |
| 18 $\frac{1}{4}$ | 6 $\frac{1}{4}$ | 8 $\frac{3}{4}$ | Do. . . | Hon. Walter Rothschild. |



Head of Buffon's Kob. Shot by Lady Constance Stewart Richardson in Nigeria.

BUFFON'S KOB (*Cobus kob*).

Maria, Hausa.

In common with the puku, this species has the back of the ears rufous like the body: it is specially distinguished by the horns being less than twice the length of the head, the hair short, and the front of the fore-legs black. The approximate height at the shoulder is from 32 to 35½ inches.

Distribution.—The forest zone.

A.—**WESTERN RACE** (*C. kob typicus*).

Distribution.—Gambia to Nigeria and Lake Chad district.

| Length on front. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------|----------------|-------------|------------------|------------------------------------|
| 21¾ | 6½ | 12 | N. Nigeria . . . | E. H. M. Bennett. |
| 21 | 6 | 14¼ | Do. . . . | Lady Constance Stewart Richardson. |
| 20½ | 6¾ | 10½ | Nigeria | Capt. W. H. Wilkin. |

- Owner's measurements.

RECORDS OF BIG GAME

| Length on front. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------|-----------------|------------------|---------------------|----------------------------------|
| 20 $\frac{1}{2}$ | 7 $\frac{1}{4}$ | 10 | Lake Chad . . . | L. C. Jackson. |
| 20 $\frac{1}{2}$ | 7 | 7 $\frac{1}{2}$ | Nigeria . . . | P. Chapman. |
| 20 $\frac{1}{4}$ | 6 $\frac{1}{4}$ | 12 $\frac{1}{4}$ | Do. . . . | A. B. Baillie-Hamilton. |
| 20 | 7 | 7 | Do. . . . | W. F. Gowers. |
| 20 | 7 | 7 $\frac{3}{4}$ | Do. . . . | Sir E. Stewart Richardson, Bart. |
| 20 | 6 $\frac{5}{8}$ | 6 $\frac{3}{4}$ | Lake Chad . . . | Sir Edmund G. Loder, Bart. |
| 20 | 7 $\frac{3}{8}$ | 14 $\frac{1}{2}$ | Do. . . . | Capt. J. B. Cockburn. |
| 20 | 7 | 10 $\frac{1}{8}$ | Nigeria . . . | C. S. Burnett. |
| 19 $\frac{3}{4}$ | 7 | 3 $\frac{1}{2}$ | Do. . . . | Capt. Lord J. S. Cavendish. |
| 19 $\frac{3}{4}$ | 7 $\frac{3}{8}$ | 9 | Lake Chad . . . | Brig.-Gen. T. L. N. Morland. |
| 19 $\frac{3}{4}$ | 6 $\frac{7}{8}$ | 7 $\frac{1}{4}$ | Nigeria . . . | Major A. H. Festing. |
| 19 $\frac{1}{2}$ | 6 $\frac{1}{2}$ | 8 | Do. . . . | Major T. Astley Cubitt. |
| 19 $\frac{1}{2}$ | 6 $\frac{1}{4}$ | 6 $\frac{1}{2}$ | Do. . . . | R. W. Fox. |
| 19 $\frac{1}{2}$ | 6 | 14 $\frac{1}{2}$ | N. Nigeria . . . | L. C. Murray. |
| 19 $\frac{1}{2}$ | 6 $\frac{3}{4}$ | 11 $\frac{3}{4}$ | Do. . . . | Capt. L. C. Brodie. |
| 19 $\frac{1}{2}$ | 6 $\frac{3}{4}$ | 5 $\frac{1}{2}$ | S. Nigeria . . . | W. V. Nugent. |
| 19 $\frac{1}{4}$ | 7 | 8 $\frac{7}{8}$ | N. Nigeria . . . | C. S. Mann. |
| 19 $\frac{1}{4}$ | 6 $\frac{1}{4}$ | 6 $\frac{1}{2}$ | Do. . . . | Capt. F. E. Bissell. |
| 19 $\frac{1}{4}$ | 6 $\frac{3}{4}$ | 13 | Lake Chad . . . | Capt. J. C. Parker. |
| 19 | 6 $\frac{3}{4}$ | 13 $\frac{1}{2}$ | Do. . . . | A. Noel Woods. |
| 19 | 6 $\frac{1}{2}$ | 11 | Do. . . . | Capt. S. B. B. Dyer. |
| 19 | 6 $\frac{3}{4}$ | 8 $\frac{3}{4}$ | Nigeria . . . | Capt. G. C. Kelly. |
| 18 $\frac{3}{4}$ | 5 $\frac{3}{4}$ | 6 $\frac{1}{2}$ | Do. . . . | Major F. Lyon. |
| 18 $\frac{3}{4}$ | 6 | 10 $\frac{3}{4}$ | Do. . . . | W. D. Barber. |
| 18 $\frac{5}{8}$ | 6 $\frac{1}{4}$ | 9 $\frac{3}{4}$ | Benue | H. S. Berkeley. |
| 18 $\frac{1}{2}$ | 6 $\frac{1}{2}$ | 11 | Nigeria . . . | Major H. R. Beddoes. |
| 18 $\frac{1}{2}$ | 6 | 8 $\frac{1}{2}$ | Benue Valley . . . | Major J. A. Burdon. |
| 18 $\frac{1}{2}$ | 6 $\frac{1}{4}$ | 10 | N. Nigeria . . . | A. C. Aubin. |
| 18 $\frac{1}{2}$ | 6 $\frac{1}{2}$ | 7 $\frac{1}{4}$ | Nigeria . . . | H. C. Hall. |
| 18 $\frac{1}{2}$ | 6 $\frac{1}{4}$ | 7 | Do. . . . | P. V. P. Stone. |
| 18 $\frac{3}{8}$ | 6 $\frac{1}{2}$ | 6 $\frac{1}{2}$ | Do. . . . | A. F. Williams. |
| 17 $\frac{1}{2}$ | 6 $\frac{1}{2}$ | 10 $\frac{3}{4}$ | Sierra Leone . . . | C. Cary Barnard. |
| 17 $\frac{1}{4}$ | 6 | 8 $\frac{3}{4}$ | Portuguese Guinea . | M. V. Hay. |
| 16 $\frac{7}{8}$ | 6 | 10 $\frac{3}{4}$ | Sierra Leone . . . | Major W. Gillman. |
| 15 | 5 $\frac{1}{2}$ | 5 $\frac{3}{4}$ | Gold Coast . . . | Capt. G. H. Hastings. |



Skull and Horns of Uganda Buffon's Kob.

B.—**UGANDA RACE** (*C. coba thomasi*).

Nsuna, *N'Sunu*, or *Sunu*, Waganda.

From the typical Buffon's kob the eastern or Uganda race is distinguished mainly by its superior size, and the presence of a complete white ring round each eye, instead of having only a white line above the same. General colour rich rufous, with the muzzle, lips, chin, under-parts, and inner surfaces of upper portion of fore-legs and thighs white; front of fore-legs with a black line, and hind-legs with a similar line, which does not, however, ascend within some distance of the hocks. Height at shoulder about 35 inches.

Distribution.—East Africa, from Kavirondo to Uganda.

RECORDS OF BIG GAME

| Length on front. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------|-----------------|------------------|--------------------|-------------------------------|
| 24 $\frac{1}{4}$ | 7 $\frac{1}{8}$ | 12 | Wadelai . . . | Major G. A. S. Cape. |
| 23 $\frac{1}{2}$ | 7 $\frac{1}{4}$ | 6 $\frac{3}{8}$ | Mruli . . . | Major J. Ponsonby. |
| 23 | 7 $\frac{1}{2}$ | 16 $\frac{1}{2}$ | Edward Nyanza . . | Mrs. P. H. G. Powell-Cotton. |
| 22 $\frac{3}{4}$ | 7 $\frac{1}{8}$ | 11 $\frac{1}{2}$ | Uganda . . . | Major C. A. Sykes. |
| 22 $\frac{1}{2}$ | 7 $\frac{3}{4}$ | 14 $\frac{1}{4}$ | Do. . . . | Capt. W. S. Nicolson. |
| 22 $\frac{1}{2}$ | 6 $\frac{1}{2}$ | 10 $\frac{3}{4}$ | Albert Nyanza . . | Capt. P. Garrard. |
| 22 $\frac{1}{4}$ | 8 $\frac{1}{2}$ | 15 $\frac{1}{2}$ | Uganda . . . | Major R. H. Price. |
| 22 | 7 $\frac{1}{2}$ | 12 $\frac{3}{4}$ | Do. . . . | Capt. A. J. Whittle. |
| 22 | 7 | 7 $\frac{3}{4}$ | Do. . . . | P. B. Vander Byl. |
| 21 $\frac{7}{8}$ | 7 | 15 $\frac{3}{4}$ | Do. . . . | Capt. P. M. Larken. |
| 21 $\frac{3}{4}$ | 7 $\frac{3}{4}$ | 9 | Do. . . . | Major R. A. Markham. |
| 21 $\frac{1}{2}$ | 7 $\frac{1}{2}$ | 10 $\frac{1}{2}$ | Do. . . . | F. J. Jackson. |
| 21 $\frac{1}{2}$ | 8 | 9 $\frac{3}{4}$ | Do. . . . | Douglas M'Douall. |
| 21 $\frac{1}{4}$ | 6 $\frac{5}{8}$ | 7 $\frac{1}{2}$ | Do. . . . | R. de la Huerta. |
| 21 $\frac{1}{8}$ | 7 $\frac{1}{2}$ | 13 $\frac{1}{4}$ | Lado . . . | Major P. H. G. Powell-Cotton. |
| 21 $\frac{1}{8}$ | 7 $\frac{1}{4}$ | 7 $\frac{3}{4}$ | Wadelai . . . | Lieut.-Col. M. L. Carleton. |
| 21 | 6 $\frac{3}{4}$ | 5 | Uganda . . . | G. L. Harrison. |
| 21 | 7 $\frac{3}{4}$ | 11 | East Africa . . . | F. C. Selous. |
| 21 | 7 $\frac{3}{4}$ | 9 $\frac{1}{2}$ | Semliki Valley . . | R. E. Dent. |
| 20 $\frac{7}{8}$ | 7 $\frac{1}{8}$ | 5 $\frac{5}{8}$ | E. Africa . . . | E. H. Lichfield. |
| 20 $\frac{3}{4}$ | 7 | 11 $\frac{5}{8}$ | Do. . . . | Capt. H. C. S. Ashton. |
| 20 $\frac{3}{4}$ | 8 $\frac{1}{8}$ | 6 $\frac{1}{4}$ | Uganda . . . | C. S. Mann. |
| 20 $\frac{3}{4}$ | 7 $\frac{7}{8}$ | 9 | Semliki Valley . . | Hon. G. Legge. |
| 20 $\frac{3}{4}$ | 7 | 9 $\frac{1}{4}$ | Uganda . . . | H. Twyford. |
| 20 $\frac{1}{2}$ | 7 | 9 $\frac{3}{4}$ | Semliki Valley . . | Col. J. J. Harrison. |
| 20 $\frac{1}{2}$ | 7 | 11 | East Africa . . . | B. Dominick. |
| 20 $\frac{1}{2}$ | 5 $\frac{7}{8}$ | 6 $\frac{1}{2}$ | Uganda . . . | Hon. Walter Rothschild. |
| 20 $\frac{1}{2}$ | 6 $\frac{3}{4}$ | 11 $\frac{1}{2}$ | Do. . . . | C. Craig. |
| 20 $\frac{1}{2}$ | 7 $\frac{1}{4}$ | 8 $\frac{3}{8}$ | Do. . . . | British Museum. |
| 20 $\frac{1}{4}$ | 7 $\frac{1}{4}$ | 9 $\frac{5}{8}$ | Do. . . . | Lord Hindlip. |
| 20 $\frac{1}{4}$ | 6 $\frac{3}{4}$ | 11 | Nile Valley . . . | Major W. Anstruther Gray. |
| 20 $\frac{1}{4}$ | 7 | 12 $\frac{1}{2}$ | East Africa . . . | H. S. Keating. |

- Owner's measurements.



Head and Fore-quarters of Lechwi. From a photograph by Mr. Poulett-Weatherley.

The LECHWI (*Cobus leche*).

Umbundu, Angola.

Lechi or *Li-gwi*, Makololo.

Lechwi, Barotsi and Ngami.

Inya, Masubia.

Mumembi (male), *Ngia* (female), *Unya*, Makuba.

Chilala and Chibisa.

Bainanja, Mushu Kulumbwi.

Nainja, Chila.

In this handsome antelope the horns are longer than in its allies, considerably exceeding twice the length of the head, while the front of the fore-legs is black, and the hair long. Height at shoulder, 40 or 41 inches.

Like the puku, this kob was discovered by Livingstone and his companions Oswell and Murray during their journey to Lake Ngami in 1849. In point of size it approximates to the true waterbucks, from which, however, in addition to the features already mentioned, it may always be distinguished by its lighter and more graceful build.

The general colour is rufous, or foxy red, of a lighter tint than in the Uganda kob.

Seldom found very far from water, this antelope is most abundant in the lagoons and swamps created by the annual rising of the Upper Zambesi, the Botletli, Chobi, Tamulakan, and other rivers of the interior, in localities where the surrounding flats are inundated for some part of the year. The lechwi seldom ventures into the deep rivers from fear of the crocodiles, but among the reed-beds, the shallow lagoons, and flooded flats it is a familiar animal. It is often to be found, in the less accessible regions, in vast herds. An excellent swimmer, it can progress by a succession of splashing bounds at great speed through the lagoons and shallows. It is extremely tenacious of life.

Distribution.—Zambesia and Barotsiland.

| Length on front. | Circumference. | Tip to Tip. | Locality. | Owner. |
|-------------------|-----------------|------------------|------------------------|------------------------------|
| -33 $\frac{1}{2}$ | 7 | 26 $\frac{3}{4}$ | Lake Bangweolo | . Poulett-Weatherley. |
| -33 $\frac{1}{4}$ | ... | 27 | N.W. Rhodesia | . Major W. Q. Winwood. |
| 33 | 9 | 19 $\frac{1}{4}$ | Do. | . Capt. G. A. Swinton Home. |
| 33 | 8 $\frac{1}{2}$ | 26 | Do. | . Major P. G. A. Cox. |
| 32 $\frac{1}{4}$ | 7 $\frac{3}{4}$ | 19 $\frac{3}{4}$ | Do. | . G. L. Harrison. |
| 32 $\frac{1}{4}$ | 9 $\frac{1}{4}$ | 26 $\frac{1}{2}$ | Do. | . C. M. Rolker. |
| 31 $\frac{1}{2}$ | 7 | 18 | Do. | . Col. C. Harding. |
| 31 $\frac{1}{2}$ | 8 $\frac{3}{4}$ | 21 $\frac{1}{2}$ | Do. | . Major G. J. Fitzgerald. |
| 31 | 8 | 18 $\frac{1}{2}$ | Do. | . A. de L. Long. |
| 31 | 8 $\frac{3}{4}$ | 13 | Do. | . P. K. Glazebrook. |
| 30 $\frac{3}{4}$ | 8 | 25 $\frac{1}{4}$ | Do. | . G. de P. Colvile. |
| 30 $\frac{2}{5}$ | 8 $\frac{1}{2}$ | 19 $\frac{1}{4}$ | Do. | . Sir Edmund G. Loder. Bart. |
| 30 $\frac{1}{4}$ | 8 | 20 $\frac{3}{4}$ | Do. | . R. A. M'Clymont. |
| 30 $\frac{1}{4}$ | 8 $\frac{1}{2}$ | 21 $\frac{1}{4}$ | Do. | . G. F. Watherston. |
| 30 $\frac{1}{4}$ | 8 | 19 $\frac{1}{2}$ | Do. | . Viscount Bury. |
| 30 | 8 | 25 $\frac{3}{4}$ | Do. | . V. F. Bishop. |
| 30 | 8 $\frac{1}{4}$ | 20 $\frac{1}{2}$ | British Central Africa | . J. H. Hayes. |
| 29 $\frac{3}{4}$ | 7 $\frac{3}{4}$ | 20 $\frac{1}{4}$ | N.W. Rhodesia | . R. C. Forster. |
| 29 $\frac{1}{4}$ | 8 $\frac{1}{2}$ | 18 $\frac{3}{4}$ | Do. | . Capt. G. M. Lumsden. |
| 29 $\frac{3}{4}$ | 8 | 20 $\frac{3}{4}$ | Do. | . Duke of Westminster. |
| 29 $\frac{1}{4}$ | 8 $\frac{1}{4}$ | 20 $\frac{1}{2}$ | Do. | . Major J. Carden. |

- Owner's measurements.

| Length on front. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------|------------------|------------------|-------------------|-----------------------------------|
| 29 | 8 | 19 $\frac{1}{4}$ | N.W. Rhodesia . . | P. B. Vander Byl. |
| 29 | 8 | 16 $\frac{1}{2}$ | Do. . . | Lieut.-Col. Lord Douglas Compton. |
| 28 $\frac{3}{4}$ | 8 | 28 $\frac{1}{2}$ | Do. . . | R. T. Coryndon. |
| 28 $\frac{3}{4}$ | 7 $\frac{1}{4}$ | 12 $\frac{1}{2}$ | Do. . . | H. H. Williams. |
| 28 $\frac{3}{4}$ | 8 | 18 | Do. . . | Capt. P. R. Bald. |
| 28 $\frac{3}{4}$ | 8 $\frac{1}{4}$ | 16 | Do. . . | T. D. M. Cardeza. |
| 28 $\frac{3}{4}$ | 8 | 28 | Do. . . | Capt. J. F. Laycock. |
| 28 $\frac{3}{4}$ | 8 $\frac{3}{4}$ | 19 $\frac{1}{4}$ | Do. . . | Col. C. Harding. |
| 28 $\frac{1}{2}$ | 6 $\frac{1}{2}$ | 18 | Do. . . | Dr. Russell. |
| 28 | 8 $\frac{3}{4}$ | 16 $\frac{1}{2}$ | Do. . . | George Grey. |
| 27 $\frac{3}{4}$ | 7 $\frac{1}{2}$ | 18 $\frac{3}{4}$ | Do. . . | South African Museum. |
| 27 $\frac{3}{4}$ | 8 | 14 | Okavango Valley . | Sir H. J. Goold-Adams. |
| 27 $\frac{1}{2}$ | 8 $\frac{1}{4}$ | 17 $\frac{3}{4}$ | N.W. Rhodesia . . | R. E. Critchley-Salmonson. |
| 27 $\frac{1}{2}$ | 10 $\frac{1}{4}$ | 19 $\frac{1}{8}$ | Chobi Valley . . | British Museum (F. C. Selous). |
| 27 $\frac{1}{2}$ | 8 | 20 $\frac{1}{2}$ | N.W. Rhodesia . . | Lord H. Seymour. |
| 27 $\frac{1}{2}$ | 8 | 17 $\frac{1}{2}$ | Chobi Valley . . | R. Campbell Heathcote. |
| 27 $\frac{1}{2}$ | 8 $\frac{5}{8}$ | 12 | Do. . . | C. G. Leslie. |

In the *Field* of September 17, 1910 (vol. cxvi. p. 551), Mr. H. W. Martin states that he once came across a herd of white lechwi with black points, of which one was killed, but the skin subsequently lost. The locality is not stated, although it appears to have been in the Congo district.



Head of Lechwi.

The BLACK LECHWI (*Cobus smithemani*).

Nearly allied to the last, but the upper-parts of the adult males blackish brown.

Distribution.—Lake Mweru district, and thence to Lake Bangweolo, North-east Rhodesia.

| Length on front. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------|-----------------|------------------|------------------|---|
| 24 $\frac{1}{4}$ | 7 | 14 $\frac{1}{2}$ | Lake Bangweolo . | Claude Francis. |
| 23 $\frac{1}{4}$ | 5 $\frac{1}{4}$ | 11 $\frac{7}{8}$ | Do. . | Hon. Walter Rothschild. |
| 23 $\frac{3}{4}$ | 6 $\frac{1}{4}$ | 17 | Do. . | P. K. Glazebrook. |
| 22 $\frac{3}{4}$ | 6 $\frac{1}{2}$ | 13 $\frac{3}{4}$ | N.E. Rhodesia . | R. Hayne. |
| 22 $\frac{3}{4}$ | 6 $\frac{3}{8}$ | 11 $\frac{1}{4}$ | Do. . | G. F. Watherston. |
| 22 | 7 | 16 | Do. . | Capt. J. Harington. |
| 22 | 7 $\frac{1}{2}$ | 11 $\frac{3}{8}$ | Do. . | O. L. Beringer. |
| 21 $\frac{3}{4}$ | 6 $\frac{1}{4}$ | 18 $\frac{3}{4}$ | Do. . | Hon. Walter Rothschild. |
| 21 $\frac{3}{4}$ | 6 $\frac{3}{4}$ | 14 | Do. . | H. Cookson |
| 21 $\frac{1}{2}$ | 6 | 17 $\frac{1}{4}$ | Do. . | Dr. Cole. |
| 20 | 6 $\frac{1}{4}$ | 15 $\frac{3}{4}$ | Do. . | Glasgow Museum (Hon. N. C. Rothschild). |



Skull and Horns of Puku.

The PUKU (*Cobus vardonii*).

Impuku, Masubia.

Puku, Ngami.

Muntinya, Barotsi.

Seula, Chilala and Chibisa.

Sichisumu, Chila.

From the other small kobs with the back of the ears rufous, the puku is distinguishable at once by the uniformly foxy colour of the fore-legs, as well as by the greater length of the hair, especially in the region of the back and loins, where it has a tendency to curl. General colour reddish yellow. Height at shoulder about 39 or 40 inches. Weight about 190 lbs.

Distribution.—Chobi and Zambesi valleys, including Barotsiland, very common, and found in small herds of ten to twenty in North-west and North-east Rhodesia.

A.—TYPICAL RACE (*C. vardonii typicus*).

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|-----------------|-------------|-------------------|-------------------------|
| 20 $\frac{3}{4}$ | 7 $\frac{7}{8}$ | 17 | N.E. Rhodesia . . | Hon. Walter Rothschild. |
| 20 $\frac{1}{2}$ | 6 $\frac{3}{4}$ | 11 | N.W. Rhodesia . . | Dr. Cole. |

RECORDS OF BIG GAME

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|-----------------|------------------|--------------------------------|-----------------------------|
| 20 $\frac{1}{4}$ | 8 $\frac{1}{2}$ | 12 $\frac{1}{4}$ | Luswesi Valley, Lake Bangweolo | F. Smitheman. |
| 20 | 7 $\frac{3}{4}$ | 7 $\frac{1}{4}$ | N.W. Rhodesia . . | T. D. M. Cardeza. |
| 19 $\frac{1}{4}$ | 6 $\frac{1}{2}$ | 4 | N.E. Rhodesia . . | H. Cookson. |
| 19 $\frac{1}{4}$ | 7 $\frac{1}{2}$ | 9 $\frac{1}{4}$ | ? | T. G. Davey. |
| 19 $\frac{1}{8}$ | 6 $\frac{3}{4}$ | 8 $\frac{1}{2}$ | ? | J. Carr Saunders. |
| 19 | 7 $\frac{3}{4}$ | 5 $\frac{3}{4}$ | Barotsiland . . | Major J. Carden. |
| 18 $\frac{3}{4}$ | 6 $\frac{3}{8}$ | 8 $\frac{1}{2}$ | Do. . . | R. T. Coryndon. |
| 18 $\frac{3}{4}$ | 7 | 6 $\frac{1}{2}$ | ? | J. L. Drège. |
| 18 $\frac{3}{4}$ | 6 | 6 | British Central Africa | Dr. A. MacCarthy Morrogh. |
| 18 $\frac{1}{2}$ | 6 $\frac{1}{2}$ | 9 $\frac{1}{4}$ | ? | S. R. Price. |
| 18 $\frac{1}{2}$ | 8 | 12 | N.E. Rhodesia . . | F. H. Melland. |
| 18 $\frac{1}{4}$ | 7 | 8 $\frac{3}{4}$ | ? | W. H. Fountain. |
| 18 $\frac{1}{4}$ | 7 $\frac{1}{4}$ | 8 | ? | G. M. Spencer Smith. |
| 18 | 7 | 9 $\frac{1}{2}$ | N.W. Rhodesia . . | H. E. Hambro. |
| 18 | 7 | 11 $\frac{1}{4}$ | Do. . . | Col. C. Harding. |
| 18 | 7 $\frac{3}{8}$ | 6 | Do. . . | George Grey. |
| 17 $\frac{3}{4}$ | 6 $\frac{1}{2}$ | 8 $\frac{1}{2}$ | Do. . . | Capt. A. L. Godman. |
| 17 $\frac{3}{4}$ | 6 | 7 $\frac{1}{2}$ | Do. . . | J. Ripley. |
| 17 $\frac{3}{4}$ | 7 $\frac{1}{4}$ | 8 | Ulanga Valley . . | R. Berridge. |
| 17 $\frac{1}{2}$ | 6 $\frac{3}{4}$ | 7 $\frac{1}{4}$ | Tanganyika Plateau . | Claude Francis. |
| 17 $\frac{1}{2}$ | 7 $\frac{1}{8}$ | 5 $\frac{5}{8}$ | N.E. Rhodesia . . | Col. A. Colville. |
| 17 $\frac{1}{2}$ | 7 $\frac{1}{4}$ | 14 | N.W. Rhodesia . . | Capt. H. L. Archer-Houblon. |
| 17 $\frac{1}{2}$ | 7 | 7 | Do. . . | E. McClellan. |
| 17 $\frac{1}{2}$ | 6 $\frac{3}{4}$ | 8 | Do. . . | E. Fowler. |
| ♀ 5 $\frac{5}{8}$ | 3 $\frac{5}{8}$ | 5 $\frac{1}{4}$ | Loru Valley . . | J. Gibson Hall. |

B.—LODER'S PUKU (*C. vardoni loderi*).

Known only by the undermentioned skull.

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|----------------|-----------------|-----------|----------------------------|
| 21 | 8 | 8 $\frac{1}{4}$ | ? | Sir Edmund G. Loder, Bart. |



Head of Vaal Rhebok.

The GREY or VAAL RHEBOK (*Pelea capreolus*).

Vaal Rhebok, Cape Dutch.

Pshiatla, Basuto.

Iliza, Swazi.

Peeli, Bechuana.

The short, upright, straight, and slender horns, together with the somewhat woolly nature of the hair, serve to differentiate the vaal rhebok from the antelopes of the kindred genera. The tail, like that of the reedbucks, is moderately long and bushy; the ears are tall and narrow; the build is slight and graceful; and the general colour is uniformly pale grey, tending somewhat to fawn on the head and limbs. Height at shoulder about 28 inches in females and 30 or 31 inches in males. The chief distinctions between this antelope and reedbuck are the form of the horns and the absence of the bare patches below the ears.

Distribution.—The open hilly districts of Africa south of the Zambesi.

In the mountain ranges of the eastern and northern districts of Cape Colony, and thence onwards to the Zambesi, the vaal rhebok affords good sport; and although its somewhat stiff and stilty

appearance is not at first suggestive of unusual activity, yet the pace and regularity with which a party of these antelopes will race up the steep flank of a mountain are wonderful. A peculiar feature of the vaal rhebok is the soft and woolly nature of the grey coat ; the horns afford insignificant trophies, and the flesh is of poor quality.

| Length on front. | Circumference. | Tip to Tip. | Locality. | Owner. |
|-------------------|-----------------|-----------------|-------------------|------------------------------------|
| -11 $\frac{1}{2}$ | ... | ... | Spitzkop . . | American National Collection. |
| -11 $\frac{1}{2}$ | ... | ... | Cape Colony . | South African Museum. |
| 11 $\frac{1}{16}$ | 2 $\frac{1}{8}$ | 6 $\frac{3}{4}$ | ? | The late Surgeon H. E. Fryer, R.N. |
| 10 $\frac{3}{4}$ | 2 | 2 $\frac{1}{2}$ | Basutoland . . | Abe Bailey. |
| 10 $\frac{5}{8}$ | ... | 6 | Cape Colony . | E. T. Murray. |
| 10 $\frac{1}{2}$ | 2 $\frac{1}{8}$ | 4 $\frac{5}{8}$ | Transvaal . . | H. T. and A. H. Glynn. |
| -10 $\frac{1}{4}$ | 2 $\frac{3}{8}$ | 5 $\frac{1}{2}$ | ? | Major H. Chamney. |
| -10 $\frac{1}{4}$ | ... | 3 $\frac{3}{4}$ | ? | P. C. Keytel. |
| 10 $\frac{1}{16}$ | 2 | 3 $\frac{7}{8}$ | Near Middelburg . | Capt. E. H. E. Abadie. |
| 9 $\frac{1}{2}$ | ... | 3 $\frac{1}{4}$ | ? | Major W. Anstruther Gray. |
| -9 $\frac{3}{8}$ | 2 | 4 $\frac{1}{4}$ | Basutoland . . | Lord Milner. |
| 9 $\frac{1}{4}$ | 2 $\frac{1}{2}$ | 2 $\frac{3}{4}$ | ? | Dr. Oakeshott. |
| -9 $\frac{1}{4}$ | 2 $\frac{1}{4}$ | 2 $\frac{1}{2}$ | Near Cape Town . | Capt. W. Jardine. |
| 9 | 2 $\frac{5}{8}$ | 2 $\frac{5}{8}$ | ? | Mr. Justice Hopley. |
| -9 | 2 $\frac{1}{4}$ | 3 $\frac{1}{2}$ | Natal | C. S. Mann. |
| 8 $\frac{5}{8}$ | 2 $\frac{5}{8}$ | 2 $\frac{1}{2}$ | Cape Colony . | R. H. Venables Kyrke. |
| 8 $\frac{5}{8}$ | 2 $\frac{1}{2}$ | 2 $\frac{5}{8}$ | South Africa . | British Museum (Dr. Burchell). |
| 8 $\frac{1}{2}$ | 2 $\frac{1}{2}$ | 2 | ? | G. Richards. |
| 8 $\frac{3}{8}$ | 2 | 3 $\frac{1}{4}$ | ? | Sir Edmund G. Loder, Bart. |
| 8 $\frac{1}{4}$ | 2 | 2 $\frac{7}{8}$ | ? | F. C. Selous. |
| 8 | 2 $\frac{1}{4}$ | 2 $\frac{1}{4}$ | ? | Capt. R. Meinertzhagen. |

- Owner's measurements.



Head of Reedbuck.

The REEDBUCK (*Cervicapra arundinum*).

Rietbok, Cape Dutch.

Bushmat, Sudani.

Bemba, Masara.

Inzigi, Amandebili.

Im-vwi, Masubia.

Um-vwi, Makuba.

Inhlango, Swazi.

Iklabu, Basuto.

Impoyo, Lower Zambesi.

Mziki, Zulu and Matabili.

Natafwi, Mashukulumbwi.

Mutobo, Barotsi.

Sibughat, Ngami.

Mpoyo, Chilala and Chibisa.

N'tobi, M'Kua.

Maluvwi, Chila.

Reedbucks, none of which is so large as a waterbuck, differ from the latter and the kobs by their lighter build, and the presence of a completely bare or very short-haired patch on each side of the head immediately beneath the ear. The tail is more bushy and shorter, the

lateral hoofs are relatively smaller, and the black horns, which are of medium length and stoutness, diverge in an upward and outward direction, with a forward curvature at the tips, which may be hooked. Till very late in life the basal portion of the horns is of a pasty consistence, and owner's measurements on the field very often include this. The present species, the true reitbok of the Boers, is the largest of the genus, standing about 36 or 37 inches at the shoulder; and has the ear-patch completely bare, and the horns curving regularly forwards without terminal hooks. Reedbuck are generally met with in small family parties, and when excited or alarmed utter a shrill whistle. As their flesh is of fair quality, and their shooting by no means difficult, they are much sought after by sportsmen.

Distribution.—Africa, from the Cape to Angola on the western side, and on the eastern side through Mozambique and South Nyasaland to lat. $8^{\circ} 25'$ N. in the Bahr-el-Ghazal district. As their name implies, reedbuck frequent the reed-brakes fringing so many African rivers; some of the rivers where they are still fairly abundant being the Lotsani in Bamangwato and those of Ngami-land and the country between Mashonaland and the east coast.

| Length on front curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|-------------------------------|---------------------|------------------|---------------------|-----------------------------------|
| ¹ 18 | ... | ... | South Africa . . . | F. Vaughan Kirby. |
| 17 $\frac{1}{2}$ | 6 $\frac{1}{2}$ | 17 $\frac{1}{2}$ | Barotsiland . . . | Percy C. Reid. |
| 16 $\frac{7}{8}$ | 5 $\frac{3}{4}$ | 13 $\frac{1}{8}$ | Zululand . . . | J. Sealy-Bell. |
| 16 $\frac{1}{2}$ | 5 $\frac{3}{4}$ | 14 $\frac{1}{2}$ | P.E. Africa . . . | British Museum (Rowland Ward). |
| 16 $\frac{1}{2}$ | 6 | 12 $\frac{3}{4}$ | Do. . . | Hon. Walter Rothschild. |
| 16 $\frac{3}{8}$ | 6 $\frac{3}{8}$ | 11 | N.W. Rhodesia . . . | Capt. P. R. Bald. |
| 16 $\frac{3}{8}$ | 6 $\frac{3}{4}$ | 19 $\frac{1}{2}$ | Mpimbi, B.C.A. . . | Major F. Trollope. |
| 16 $\frac{1}{4}$ | 6 | 16 $\frac{3}{4}$ | Matabililand . . . | R. C. Batley. |
| 16 $\frac{1}{4}$ | 6 $\frac{1}{2}$ | 15 $\frac{1}{2}$ | N.W. Rhodesia . . . | Lieut.-Col. Lord Douglas Compton. |
| 16 $\frac{1}{4}$ | 5 $\frac{1}{2}$ | 20 $\frac{1}{2}$ | Barotsiland . . . | R. T. Coryndon. |
| 16 | 7 $\frac{1}{2}$ | 9 $\frac{1}{2}$ | Do. . . | Col. C. Harding. |
| 15 $\frac{7}{8}$ | 6 $\frac{1}{4}$ | 10 $\frac{1}{2}$ | ? | C. D. Rudd. |
| 15 $\frac{7}{8}$ | 6 $\frac{1}{4}$ | 14 $\frac{1}{4}$ | ? | British Museum. |
| ² 15 $\frac{3}{4}$ | 6 $\frac{1}{8}$ | 13 $\frac{1}{2}$ | Transvaal . . . | Abe Bailey. |

— Owner's measurements.

¹ This was seen and measured by Mr. Kirby. It had one horn only; the other was shot off.

² Abnormal head.

| Length on front curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|-------------------------------|---------------------|------------------|----------------------------------|----------------------------|
| 15 $\frac{3}{4}$ | 6 | 19 | Tanganyika . . . | Hon. Walter Rothschild. |
| 15 $\frac{1}{2}$ | 6 $\frac{1}{2}$ | 13 | B.C.A. . . . | Capt. J. Harington. |
| 15 $\frac{1}{4}$ | 6 $\frac{1}{4}$ | 13 $\frac{3}{4}$ | N.W. Rhodesia . . . | A. P. Henderson. |
| 15 $\frac{1}{4}$ | 6 $\frac{1}{4}$ | 13 $\frac{3}{8}$ | Barotsiland . . . | F. V. Worthington. |
| 15 $\frac{1}{4}$ | 6 | 13 $\frac{1}{2}$ | Do. . . . | Norman B. Smith. |
| 15 $\frac{1}{4}$ | 6 | 13 $\frac{3}{4}$ | Do. . . . | George Grey. |
| 15 $\frac{1}{4}$ | 6 $\frac{1}{2}$ | 10 | Do. . . . | M. C. Crawshay. |
| 15 $\frac{1}{8}$ | 6 $\frac{5}{8}$ | 11 $\frac{1}{4}$ | Manica Plateau, N. of Zambesi | F. C. Selous. |
| 15 | 6 $\frac{1}{2}$ | 9 $\frac{3}{4}$ | Mashonaland . . . | Sir John Willoughby, Bart. |
| 15 | 6 $\frac{1}{2}$ | 13 | N. Zululand . . . | R. T. Coryndon. |
| 15 | 5 $\frac{1}{2}$ | 11 | N.W. Rhodesia . . . | G. T. Hutchinson. |
| 15 | 6 $\frac{1}{2}$ | 9 $\frac{1}{4}$ | Do. . . . | T. D. M. Cardeza. |
| 14 $\frac{3}{4}$ | 5 $\frac{1}{2}$ | 9 $\frac{1}{2}$ | Do. . . . | Capt. R. Meinertzhagen. |
| 14 $\frac{3}{4}$ | 6 $\frac{3}{8}$ | 15 $\frac{1}{2}$ | Do. . . . | H. E. Hambro. |
| 14 $\frac{3}{4}$ | 6 | 10 $\frac{1}{2}$ | Do. . . . | R. E. Critchley-Salmonson. |
| 14 $\frac{3}{4}$ | 6 $\frac{1}{2}$ | 11 $\frac{1}{2}$ | Do. . . . | H. E. E. Pankhurst. |
| 14 $\frac{3}{4}$ | 6 $\frac{3}{4}$ | 9 $\frac{1}{4}$ | Do. . . . | C. G. Leslie. |
| 14 $\frac{1}{2}$ | 6 $\frac{1}{2}$ | 8 $\frac{3}{4}$ | Do. . . . | Capt. A. L. Godman. |
| 14 $\frac{1}{2}$ | 6 $\frac{1}{4}$ | 14 $\frac{1}{2}$ | Do. . . . | R. A. M'Clymont. |
| 14 $\frac{3}{8}$ | 5 $\frac{1}{2}$ | 11 $\frac{5}{8}$ | Ngamiland . . . | F. T. Garbutt. |
| ¹ 12 $\frac{1}{4}$ | 5 $\frac{1}{4}$ | 9 $\frac{1}{2}$ | Congo | H. M. Stephenson. |
| ² 12 | 6 $\frac{1}{2}$ | 12 $\frac{1}{2}$ | B.C.A. . . . | Mrs. C. B. C. Storey. |

¹ Determination provisional.

² Albino specimen.



Head of Mountain-Reedbuck.

MOUNTAIN-REEDBUCK or ROOI RHEBOK (*Cervicapra fulvorufula*).

Inhlang-amatshi, Swazi and Zulu.

This reedbuck is considerably smaller than the type species, measuring from about 28 to 31 inches at the shoulder, but has horns of much the same type, without distinct hooks to the tips. The general colour is greyish fawn, showing in some cases a more or less distinct rufous tinge.

Distribution.—Eastern Africa to the south of the Zambesi, particularly Natal, Zululand, and Bechuanaland; represented farther north by the undermentioned race. Rooi (red) rhebok differ from the typical representative of the genus in being inhabitants of the basal slopes of mountains, at a lower level than the tract frequented by the vaal rhebok. They are generally found in small troops of a dozen head or less; and from their active habits and the difficult nature of the ground they frequent, afford excellent stalking. In the neighbourhood of the tributaries of the Limpopo, on the Mabubi, Tamulikan, Machabi, Sunta, and Chobi rivers, as well as the tributaries of the Zambesi east of the Victoria Falls, and throughout Mashonaland and Matabililand rooi rhebok are still

abundant. Those from the Manica plateau, north of the Zambesi, may be the East African race.

Certain reedbucks from the Lydenburg range of the Transvaal exhibit a tendency to albinism, and have been described as a distinct race (*Cervicapra fulvorufula subalpina*), but are more probably "sports."

A reedbucks from the Mount Kenia district of East Africa appears to be a local race of this species (*C. fulvorufula chanleri*). In the original specimen the nose shows a dark streak like the one often seen in this and the typical reedbucks.

A.—TYPICAL RACE (*C. fulvorufula typica*).

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|----------------|----------------|----------------------|---|
| $8\frac{7}{8}$ | $4\frac{7}{8}$ | $4\frac{3}{4}$ | Humansdorp . . . | F. Vaughan Kirby. |
| $8\frac{5}{16}$ | $5\frac{1}{8}$ | 5 | ? | P. C. Keytel. |
| $8\frac{1}{4}$ | $3\frac{3}{4}$ | $4\frac{1}{4}$ | Transvaal . . . | F. R. N. Findlay. |
| 8 | $3\frac{7}{8}$ | $3\frac{1}{2}$ | S. E. Africa . . . | H. W. Elliott. |
| $7\frac{3}{4}$ | $4\frac{3}{4}$ | $4\frac{3}{4}$ | ? | Hon. Walter Rothschild. (Shot by F. C. Selous.) |
| $7\frac{3}{4}$ | ... | $2\frac{1}{2}$ | Transvaal . . . | J. L. Drège. |
| $7\frac{1}{2}$ | 4 | $3\frac{1}{2}$ | Lebombo Range, S. A. | Count E. Hoyos. |
| $7\frac{3}{8}$ | $4\frac{1}{4}$ | 3 | Zululand . . . | The late A. H. Neumann. |
| $7\frac{1}{4}$ | 5 | 3 | Near Bloemfontein . | R. Rankin. |
| $7\frac{1}{8}$ | $3\frac{3}{4}$ | $3\frac{1}{4}$ | ? | R. T. Coryndon. |
| 7 | $3\frac{1}{2}$ | $4\frac{1}{4}$ | Zululand . . . | A. Cameron. |
| 7 | $3\frac{3}{4}$ | $4\frac{3}{4}$ | ? | H. E. Berry. |
| 7 | $3\frac{1}{2}$ | 6 | ? | P. H. Stewart. |
| 7 | $3\frac{1}{2}$ | $5\frac{3}{4}$ | ? | G. Bateman. |

- Owner's measurements.



Skull and Horns of Eastern Mountain-Reedbucks.

B.—EAST AFRICAN RACE (*C. fulvorufula chanleri*).

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|-----------------|------------------|-----------------------|-------------------------------|
| 7 | 4 $\frac{1}{4}$ | 4 $\frac{1}{8}$ | East Africa | H. G. Watson. |
| 6 $\frac{3}{4}$ | 4 $\frac{1}{2}$ | 3 | Do. | Earl of Kingston. |
| 6 $\frac{3}{4}$ | 3 | 2 $\frac{3}{8}$ | Do. | A. E. Butter. |
| -6 $\frac{3}{4}$ | 3 $\frac{1}{2}$ | 5 $\frac{3}{4}$ | Do. | Major H. W. A. Christie. |
| 6 $\frac{3}{4}$ | 4 | 3 $\frac{3}{8}$ | Do. | Capt. T. H. Rivers Bulkeley. |
| 6 $\frac{5}{8}$ | 4 $\frac{1}{4}$ | 2 $\frac{3}{4}$ | Do. | G. Henry. |
| 6 $\frac{5}{8}$ | 3 $\frac{5}{8}$ | 3 $\frac{1}{2}$ | Do. | Lord Waleran. |
| 6 $\frac{5}{8}$ | 3 $\frac{1}{4}$ | 3 $\frac{5}{8}$ | Do. | Col. J. E. Gough. |
| -6 $\frac{5}{8}$ | 5 $\frac{1}{4}$ | 4 $\frac{1}{2}$ | Do. | Sir Edmund G. Loder, Bart. |
| 6 $\frac{1}{2}$ | 4 $\frac{1}{2}$ | 2 $\frac{7}{8}$ | Do. | K. V. Painter. |
| 6 $\frac{1}{2}$ | 3 $\frac{1}{4}$ | 3 $\frac{1}{8}$ | Do. | Lieut.-Col. C. F. Blane. |
| 6 $\frac{1}{2}$ | 4 | 4 $\frac{3}{8}$ | Do. | W. A. Baird. |
| 6 $\frac{3}{8}$ | 3 $\frac{3}{4}$ | 4 | Do. | Capt. H. C. Hart. |
| 6 $\frac{3}{8}$ | 4 $\frac{1}{4}$ | 3 $\frac{1}{2}$ | Do. | S. H. Christy. |
| 6 $\frac{3}{8}$ | 3 $\frac{1}{2}$ | 5 $\frac{1}{4}$ | Do. | P. K. Glazebrook. |
| 6 $\frac{3}{8}$ | 4 $\frac{1}{4}$ | 3 $\frac{1}{4}$ | Do. | J. R. Bradley. |
| 6 $\frac{3}{8}$ | 3 $\frac{5}{8}$ | 4 | Do. | Mrs. Percy C. Madeira. |
| 6 $\frac{1}{4}$ | 4 $\frac{1}{2}$ | 2 $\frac{5}{8}$ | Do. | Sir Robert Harvey, Bart. |
| 6 $\frac{1}{4}$ | 3 $\frac{1}{2}$ | ... | Do. | J. Jay White. |
| 6 $\frac{1}{4}$ | 3 $\frac{1}{2}$ | 3 $\frac{1}{4}$ | Do. | E. B. Bronson. |
| 6 $\frac{1}{4}$ | 4 | 4 $\frac{5}{8}$ | Do. | A. de L. Long. |
| 6 $\frac{1}{4}$ | 3 $\frac{1}{2}$ | 3 $\frac{3}{4}$ | Do. | R. Holmes. |
| 6 $\frac{1}{4}$ | 3 $\frac{7}{8}$ | 3 $\frac{5}{8}$ | Do. | Capt. A. Neave. |
| 6 $\frac{1}{8}$ | 3 $\frac{3}{4}$ | 4 $\frac{3}{4}$ | Do. | R. de la Huerta. |
| 6 $\frac{1}{8}$ | 4 $\frac{1}{8}$ | 4 $\frac{1}{4}$ | Do. | A. Fowler. |
| 6 $\frac{1}{8}$ | 3 $\frac{7}{8}$ | 4 $\frac{1}{8}$ | Do. | Gorham Brooks |
| 6 $\frac{1}{8}$ | 4 $\frac{1}{4}$ | 4 | Do. | Major P. H. G. Powell-Cotton. |
| 6 $\frac{1}{8}$ | 4 $\frac{1}{2}$ | 3 $\frac{1}{8}$ | Do. | S. L. Hinde. |
| 6 $\frac{1}{8}$ | 3 $\frac{1}{2}$ | 3 | E. of Lake Margerhita | Lord Hindlip. |
| 6 | 3 $\frac{3}{4}$ | 5 $\frac{1}{4}$ | East Africa | G. L. Harrison. |
| 6 | 3 $\frac{5}{8}$ | 4 | Do. | F. C. Selous. |
| 6 | 3 $\frac{3}{8}$ | 5 $\frac{7}{16}$ | Do. | Lord Wodehouse. |
| 6 | 3 $\frac{3}{8}$ | 4 | Do. | Col. A. Colville. |
| 6 | 4 | 3 | Do. | Capt. J. N. Price Wood. |
| 6 | 3 $\frac{3}{4}$ | 3 $\frac{1}{4}$ | Do. | E. H. Sinkinson. |
| 6 | 3 $\frac{1}{4}$ | 4 $\frac{1}{8}$ | Do. | R. B. Seager. |
| 6 | 3 $\frac{1}{2}$ | 3 $\frac{1}{2}$ | Do. | J. N. Preston-Whyte. |

- Owner's measurements.



Uganda Bohor Reedbuck.

The BOHOR REEDBUCK (*Cervicapra redunca*).

Njaza, Waganda.

Distinguished from the mountain-reedbuck (with which it agrees approximately in size) by the distinct forward curvature of the tips of the horns, so as to form hooks. General colour uniformly bright fawn, usually with somewhat darker markings on the face and part of forelimbs; tail only slightly bushy, fawn-coloured above and white beneath. The height of the East African race is about 28 inches.

Distribution.—West, East, and North-east Africa.



Skull and Horns of Abyssinian Bohor Reedbuck.

The following five races are recognised :—

Cervicapra redunca typica.—West Africa, north of forest region. Horns short and stout, very thick at base, curved in front, points turned inwards.

Cervicapra redunca cottoni.—Kordofan, White Nile, and Isle of Meroe. Horns long and thin, much curved outwards and backwards, with the points curled straight over or directly outwards.

Cervicapra redunca bohor.—Central Abyssinia. Horns longer, stouter, and not so curved as in *cottoni*.

Cervicapra redunca donaldsoni.—East of Lado and Western Somaliland. Horns long, slender, curved outwards, and points much turned inwards.

Cervicapra redunca wardi.—Uganda and East Coast of Africa. Horns short, stout, curved outwards, and the points much turned inwards.

A. The following specimens belong to the typical race :—

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|-----------------|-----------------|------------------|----------------------|
| 10 $\frac{5}{8}$ | 6 | 4 $\frac{1}{4}$ | N. Nigeria . . . | F. Beckles Gall. |
| 10 $\frac{3}{8}$ | 6 $\frac{1}{2}$ | 2 $\frac{7}{8}$ | Lake Chad . . . | Capt. S. B. B. Dyer. |
| —10 $\frac{1}{4}$ | 5 $\frac{1}{4}$ | 4 $\frac{1}{2}$ | N. Nigeria . . . | C. F. Watson. |
| 10 $\frac{1}{4}$ | 5 | 4 $\frac{3}{4}$ | Do. | Capt. G. C. Kelly. |

— Owner's measurements.

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|-----------------|-----------------|------------------|------------------------------------|
| 10 | 5 $\frac{3}{4}$ | 5 $\frac{1}{4}$ | N. Nigeria . . . | Capt. J. C. Parker. |
| 10 | 5 $\frac{1}{2}$ | 5 $\frac{1}{4}$ | Nigeria . . . | Capt. W. H. Wilkin. |
| 10 | 4 $\frac{3}{4}$ | 6 $\frac{1}{4}$ | Gold Coast . . . | Capt. G. H. Hastings. |
| 9 $\frac{3}{4}$ | 5 $\frac{3}{4}$ | 5 | N. Nigeria . . . | A. A. Smith. |
| 9 $\frac{1}{2}$ | 5 $\frac{1}{4}$ | 7 $\frac{3}{4}$ | Do. . . . | A. Noel Woods. |
| 9 $\frac{1}{2}$ | 5 | 3 $\frac{1}{2}$ | Do. . . . | Major J. W. Carroll. |
| 9 $\frac{1}{2}$ | 5 $\frac{1}{2}$ | 7 $\frac{1}{2}$ | Do. . . . | A. C. Aubin. |
| 9 $\frac{1}{4}$ | 5 | 4 $\frac{1}{8}$ | Do. . . . | Capt. W. C. N. Hastings. |
| 9 $\frac{1}{8}$ | 5 $\frac{1}{4}$ | 6 $\frac{1}{4}$ | Do. . . . | Major W. Anstruther Gray. |
| 9 $\frac{1}{8}$ | 4 $\frac{3}{4}$ | 6 $\frac{3}{4}$ | Do. . . . | S. C. Peck. |
| 9 | 4 $\frac{1}{2}$ | 7 $\frac{1}{2}$ | Do. . . . | Lady Constance Stewart-Richardson. |
| 9 | 5 | 5 $\frac{1}{4}$ | Do. . . . | Sir E. Stewart-Richardson, Bart. |
| 8 $\frac{3}{4}$ | 5 | 6 | Do. . . . | Capt. J. B. Cockburn. |
| 8 $\frac{3}{4}$ | 5 | 5 $\frac{3}{4}$ | Do. . . . | Capt. H. V. Venables Kyrke. |
| 8 $\frac{3}{4}$ | 5 | 5 $\frac{1}{2}$ | Do. . . . | Capt. T. N. Puckle. |
| 8 $\frac{3}{4}$ | 6 | 4 | Nigeria . . . | Capt. G. W. Denison. |
| 8 $\frac{3}{4}$ | 5 $\frac{1}{2}$ | 5 | Do. . . . | Hon. Walter Rothschild. |
| 8 $\frac{3}{4}$ | 5 $\frac{1}{4}$ | 4 $\frac{5}{8}$ | Gambia . . . | Commr. A. A. Ellison, R.N. |

B. *The following belong to Cervicapra redunca bohor* :—

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|-----------------|------------------|---------------------|-------------------------------|
| 10 $\frac{3}{4}$ | 5 $\frac{3}{4}$ | 11 $\frac{1}{4}$ | West of Lake Tana . | Major P. H. G. Powell-Cotton. |
| 10 $\frac{5}{8}$ | 5 $\frac{1}{2}$ | 5 | Abyssinia . . . | D. P. MacGillivray. |
| 9 $\frac{3}{4}$ | 5 $\frac{3}{4}$ | 5 | Lake Zuay . . . | Lord Hindlip. |
| 9 $\frac{3}{4}$ | 6 | 8 | Zuguala Mt. . . . | A. E. Butter. |
| 9 $\frac{1}{4}$ | 5 $\frac{3}{4}$ | 5 $\frac{1}{2}$ | Abyssinia . . . | Hon. Walter Rothschild. |

C. *The undermentioned specimens are referable to Cervicapra redunca cottoni* :—

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|-----------------|------------------|---------------------|-----------------------------|
| 15 | 5 $\frac{1}{4}$ | 12 $\frac{5}{8}$ | Dinder Valley . . . | C. Bower Ismay. |
| 14 $\frac{3}{4}$ | 5 $\frac{1}{4}$ | 16 $\frac{5}{8}$ | Do. . . . | Capt. B. W. Y. Danford. |
| 14 $\frac{5}{8}$ | 6 | 11 $\frac{3}{4}$ | Do. . . . | Col. A. Colville. |
| 14 $\frac{1}{2}$ | 5 $\frac{1}{4}$ | 13 | Do. . . . | Lord Villiers. |
| 14 $\frac{1}{2}$ | 4 $\frac{3}{4}$ | 15 | Blue Nile . . . | G. L. Harrison. |
| 14 $\frac{3}{8}$ | 5 $\frac{1}{2}$ | 13 | Sudan . . . | Prince Colloredo Mannsfeld. |
| 14 | 6 | 16 $\frac{3}{8}$ | Dinder Valley . . . | Norman B. Smith. |
| -14 | ... | 16 $\frac{7}{8}$ | Blue Nile . . . | A. L. Butler. |
| -14 | ... | 18 | Do. . . . | G. B. Middleton. |
| 13 $\frac{3}{4}$ | 5 $\frac{1}{4}$ | 9 | Sudan . . . | Douglas M'Douall. |
| 13 $\frac{3}{4}$ | 5 $\frac{1}{2}$ | 7 $\frac{1}{2}$ | Dinder Valley . . . | C. D. Eyre. |

— Owner's measurements.

RECORDS OF BIG GAME

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|-----------------|------------------|---------------|-----------------------------|
| 13 $\frac{3}{4}$ | 5 | 12 $\frac{1}{2}$ | Dinder Valley | Major C. P. B. Wood. |
| 13 $\frac{3}{4}$ | 6 | 9 $\frac{5}{8}$ | Do. | Prince F. Liechtenstein. |
| 13 $\frac{3}{4}$ | 6 | 12 | Do. | Capt. J. C. Graham. |
| 13 $\frac{1}{4}$ | 5 | 18 $\frac{1}{4}$ | Do. | C. E. Russell. |
| 13 $\frac{1}{4}$ | 5 $\frac{3}{4}$ | 12 $\frac{3}{8}$ | Mongalla | Capt. P. A. Wilson. |
| 12 $\frac{3}{4}$ | 5 $\frac{1}{4}$ | 8 $\frac{1}{4}$ | Near Kassala | Carl Hagenbeck. |
| 12 $\frac{3}{4}$ | 5 | 15 | Sudan | Capt. P. M. Dove. |
| 12 $\frac{5}{8}$ | 5 | 12 $\frac{3}{4}$ | Mongalla | J. V. Colby. |
| 12 $\frac{1}{2}$ | 4 $\frac{3}{4}$ | 11 | Dinder Valley | Capt. Lord J. S. Cavendish. |
| 12 $\frac{1}{2}$ | 5 $\frac{3}{4}$ | 9 $\frac{5}{8}$ | Rahad Valley | Col. G. D. Hunter. |
| 12 $\frac{1}{2}$ | 6 | 12 $\frac{1}{2}$ | Sudan | W. N. McMillan. |
| 12 $\frac{1}{2}$ | 5 | 9 $\frac{3}{4}$ | Setit Valley | Earl of Sefton. |
| 12 $\frac{3}{8}$ | 6 | 7 $\frac{1}{4}$ | Sudan | Capt. A. C. Jeffcoat. |
| 12 $\frac{1}{4}$ | 5 | 14 $\frac{3}{4}$ | Do. | R. A. Colvin. |
| 12 $\frac{1}{4}$ | 5 $\frac{1}{4}$ | 10 $\frac{1}{4}$ | Do. | C. Bulpett. |

D. The following specimens are referable to *Cervicapra redunca wardi*:—

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|-----------------|-----------------|-------------|--------------------------------|
| 13 $\frac{3}{4}$ | 5 $\frac{1}{8}$ | 8 $\frac{1}{8}$ | East Africa | British Museum. |
| 13 $\frac{1}{2}$ | 5 $\frac{1}{2}$ | 4 $\frac{1}{2}$ | Do. | Maj.-Gen. Sir J. R. Macdonald. |
| 11 $\frac{1}{2}$ | 6 $\frac{1}{4}$ | 9 $\frac{1}{4}$ | Do. | Lord Hindlip. |
| 11 $\frac{3}{8}$ | 5 $\frac{1}{2}$ | 7 $\frac{1}{2}$ | Do. | S. H. Christy. |
| 10 $\frac{5}{8}$ | 6 $\frac{3}{8}$ | 8 $\frac{1}{2}$ | Do. | A. Fowler. |
| 10 $\frac{5}{8}$ | 5 $\frac{3}{4}$ | 7 $\frac{3}{8}$ | Do. | Sutton Timmis. |
| 10 $\frac{5}{8}$ | 4 $\frac{1}{2}$ | 5 $\frac{1}{2}$ | Do. | Sir Robert Harvey, Bart. |
| 10 $\frac{1}{2}$ | 5 $\frac{1}{2}$ | 9 $\frac{1}{2}$ | Uganda | Duke of Peneranda. |
| 10 $\frac{1}{2}$ | 6 $\frac{3}{8}$ | 7 | East Africa | F. C. Selous. |
| 10 $\frac{1}{4}$ | 6 $\frac{1}{4}$ | 4 | Do. | Lord Montgomerie. |
| 10 $\frac{1}{4}$ | 5 $\frac{7}{8}$ | 7 $\frac{1}{8}$ | Do. | H. Fowler. |
| 10 $\frac{1}{4}$ | 5 $\frac{3}{4}$ | 7 $\frac{1}{4}$ | Do. | B. Barr Smith. |
| 10 $\frac{1}{4}$ | 6 | 5 $\frac{1}{4}$ | ? | Col. Max. C. Fleischmann. |
| 10 | 5 $\frac{1}{2}$ | 6 $\frac{1}{4}$ | Mau Plateau | F. J. Jackson. |
| 10 | 7 $\frac{1}{4}$ | 4 $\frac{3}{8}$ | East Africa | C. Craig. |

| Length on front curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|---------------------------|---------------------|-----------------|-------------------|-------------------------|
| 10 | 5 $\frac{1}{4}$ | 4 $\frac{3}{4}$ | East Africa . . . | G. G. Longden. |
| 10 | 5 $\frac{3}{4}$ | 5 | Do. | Capt. R. Meinertzhagen. |
| 10 | 6 | 7 $\frac{1}{2}$ | Do. | R. de la Huerta. |
| 10 | 6 | 5 | Do. | Duke of Medinaceli. |
| 10 | 5 $\frac{3}{4}$ | 6 $\frac{1}{2}$ | Do. | Duke of Alba. |
| 10 | 5 $\frac{1}{2}$ | 6 | Do. | N. C. Cockburn. |
| 10 | 5 $\frac{1}{4}$ | 7 | Do. | W. N. McMillan. |



Head of Sudan Bohor Reedbuck, showing the divergent type of horns.
Shot by Mr. G. L. Harrison.



Head of Pala.

The PALA or IMPALA (*Æpyceros melampus*).

Rooibok, Cape Dutch.

Inzero, Masubia.

Swala, Swahili.

Luondo and *Mpala*, Barotsi,

Ngami, Chilala, and Chibisa.

Pala, Waganda, Basuto, and Bechuna.

Impala, Zulu, Swazi, and Matonga.

Luboudar, Chila.

The pala, saiga, and chiru have been generally classed with the gazelles, but apparently form independent groups. The specific name (black-footed) of the first refers to the pair of black tufts on each hind-foot. The horns of the bucks, which are of considerable length in proportion to the size of the animal, show a characteristic and graceful double curvature; and the bright foxy-red hue of the shining hair of the upper-parts is very characteristic. Height at shoulder from about 34 to 37 or 38 inches. Weight from about 130 to 160 lbs.

Distribution.—Southern and Eastern Africa, extending as far north as Lower Kordofan. In Angola replaced by an allied form, usually regarded as a distinct species, but which is perhaps only a local race (*Æ. melampus petersi*), distinguished by the presence of a purplish-black streak down the middle of the face and another

through the line of each eye. In the days of their abundance pala were found in big troops, such as are still to be met with on the Upper Zambesi, in East Mashonaland, and parts of British East and Central Africa. Some half-century ago they were to be found in similar numbers among the covert on the banks of every river in the Transvaal and Bechuanaland; but it is not till the northern border of the former country that they are now to be met with, and then only in small parties. Pala are some of the fleetest of all antelopes, and are in the habit of leaping high in the air; their presence always implies the neighbourhood of water.

A.—TYPICAL RACE (Æ. melampus typicus).

| Length. | | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|--------------------|------------------|---------------------|------------------|-----------------|-------------------------------|
| On front curve. | Straight. | | | | |
| 31 $\frac{1}{8}$ | 25 $\frac{1}{2}$ | 6 $\frac{1}{2}$ | 18 $\frac{1}{4}$ | East Africa . . | Sir Richard Dane. |
| 31 $\frac{1}{4}$ | 25 | 6 $\frac{5}{8}$ | 13 | Do. . . | E. M. Crosfield. |
| 30 $\frac{7}{8}$ | ... | 5 $\frac{3}{4}$ | 23 $\frac{1}{2}$ | Do. . . | Capt. E. Berry. |
| 30 | 24 $\frac{3}{4}$ | 6 $\frac{1}{2}$ | 20 $\frac{3}{4}$ | Do. . . | Count C. Podstatzky. |
| 30 | 24 | 6 $\frac{1}{4}$ | 17 $\frac{1}{2}$ | Do. . . | Lord Delamere. |
| 29 $\frac{3}{4}$ | 24 $\frac{1}{4}$ | 6 $\frac{1}{4}$ | 17 | Do. . . | Capt. W. M. Burrell. |
| 29 $\frac{1}{2}$ | 25 | 6 | 24 | Do. . . | H. Hyde-Baker. |
| 29 $\frac{1}{2}$ | 24 | 6 | 18 $\frac{1}{4}$ | Do. . . | J. E. R. Oldfield. |
| 29 $\frac{1}{2}$ | 23 $\frac{3}{4}$ | 6 $\frac{1}{2}$ | 15 $\frac{3}{4}$ | Do. . . | A. E. Butter. |
| 29 $\frac{1}{4}$ | 24 $\frac{1}{2}$ | 6 | 19 $\frac{1}{2}$ | Do. . . | Count E. Hoyos. |
| 29 $\frac{1}{4}$ | 23 $\frac{5}{8}$ | 6 $\frac{3}{8}$ | 16 $\frac{1}{4}$ | Do. . . | W. W. Ashley. |
| 29 $\frac{1}{4}$ | 24 $\frac{1}{4}$ | 6 $\frac{1}{4}$ | 16 $\frac{1}{4}$ | Do. . . | A. J. A. Douglas. |
| 29 $\frac{1}{4}$ | 23 $\frac{3}{8}$ | 6 $\frac{3}{8}$ | 17 | Do. . . | E. Sartorius. |
| 29 | 24 $\frac{1}{2}$ | 6 | 27 $\frac{1}{8}$ | Do. . . | Capt. F. H. Span. |
| 29 | 24 $\frac{1}{4}$ | 6 | 21 $\frac{1}{4}$ | Do. . . | Capt. M. L. Pears. |
| 29 | 24 $\frac{1}{4}$ | 6 $\frac{3}{8}$ | 16 $\frac{3}{4}$ | Do. . . | H. S. L. Scott. |
| 29 | 23 | 6 $\frac{1}{4}$ | 17 $\frac{1}{2}$ | Do. . . | Capt. T. H. Rivers Bulkeley. |
| 29 | 22 $\frac{1}{2}$ | 6 | 9 $\frac{3}{8}$ | Do. . . | Dr. A. Paget. |
| 28 $\frac{7}{8}$ | ... | 5 $\frac{3}{4}$ | 17 $\frac{3}{8}$ | Do. . . | Major P. H. G. Powell-Cotton. |
| 28 $\frac{3}{4}$ | 24 | 6 $\frac{1}{2}$ | 17 $\frac{1}{4}$ | Do. . . | Major L. Boyd Moss. |
| 28 $\frac{3}{4}$ | 23 $\frac{1}{2}$ | 6 $\frac{1}{4}$ | 19 | Do. . . | Sir Edmund G. Loder, Bart. |
| 28 $\frac{3}{4}$ | 22 $\frac{1}{2}$ | 6 | 16 $\frac{1}{4}$ | Do. . . | N. C. Cockburn. |
| 28 $\frac{5}{8}$ | 23 $\frac{1}{2}$ | 6 | 24 | Do. . . | W. N. McMillan. |
| 28 $\frac{5}{8}$ | 22 $\frac{1}{4}$ | 6 $\frac{1}{4}$ | 13 $\frac{1}{2}$ | Do. . . | Capt. J. N. Price Wood. |
| 28 $\frac{1}{2}$ | 22 | 6 $\frac{1}{4}$ | 11 $\frac{1}{2}$ | Do. . . | Capt. Lord J. S. Cavendish. |
| 28 $\frac{1}{2}$ | 23 $\frac{1}{4}$ | 6 $\frac{1}{2}$ | 16 $\frac{1}{2}$ | Do. . . | Capt. E. F. Hausburg. |

| On front curve. | Length. | | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------|------------------|-----------------|------------------|--------------|-----------|---------------------------------------|
| | Straight. | | | | | |
| 28 $\frac{1}{2}$ | 22 $\frac{1}{2}$ | 6 $\frac{1}{4}$ | 12 $\frac{1}{4}$ | East Africa | . | L. H. Lloyd. |
| 28 $\frac{1}{2}$ | 24 $\frac{1}{4}$ | 6 | 20 $\frac{1}{2}$ | Do. | . | Capt. L. H. Hickson. |
| 28 $\frac{1}{4}$ | 24 $\frac{3}{8}$ | 6 $\frac{1}{4}$ | 24 $\frac{1}{2}$ | Do. | . | Capt. R. Meinertzhagen. |
| 28 $\frac{1}{4}$ | 23 | 6 $\frac{1}{2}$ | 11 $\frac{1}{4}$ | Do. | . | J. R. Bradley. |
| 28 $\frac{1}{4}$ | 23 | 6 | 19 | Do. | . | G. F. Archer. |
| 28 $\frac{1}{4}$ | 21 $\frac{3}{4}$ | 5 $\frac{3}{4}$ | 17 $\frac{3}{4}$ | Do. | . | H. C. Allfrey. |
| 28 | 23 | 6 $\frac{1}{2}$ | 12 | Do. | . | H.R.H. Prince Arthur of Connaught. |
| 28 | 22 $\frac{3}{8}$ | 6 $\frac{1}{4}$ | 25 | Do. | . | Earl of Warwick. |
| 28 | 23 | 6 $\frac{1}{4}$ | 13 | Do. | . | Walter Jones. |
| 28 | 24 $\frac{1}{4}$ | 6 $\frac{3}{8}$ | 17 $\frac{1}{4}$ | Do. | . | R. Hayne. |
| 28 | 23 $\frac{1}{4}$ | 5 $\frac{3}{8}$ | 22 | Do. | . | Hon. E. Coke. |
| 28 | 23 $\frac{3}{4}$ | 5 $\frac{3}{4}$ | 17 $\frac{3}{4}$ | Do. | . | C. H. Tritton. |
| 28 | 24 | 6 | 22 $\frac{3}{4}$ | Do. | . | H. B. Tate. |
| 28 | 22 $\frac{1}{2}$ | 6 | 12 | Do. | . | F. J. Jackson. |
| 28 | 21 | 5 $\frac{7}{8}$ | 12 $\frac{1}{4}$ | Do. | . | G. E. Smith. |
| 28 | 22 | 5 $\frac{1}{2}$ | 16 $\frac{1}{4}$ | Do. | . | Capt. F. W. Barrett. |
| 28 | 22 $\frac{3}{4}$ | 5 $\frac{1}{2}$ | 13 $\frac{1}{2}$ | Do. | . | The Master of Belhaven. |
| 27 $\frac{3}{4}$ | 22 | 5 $\frac{1}{4}$ | 16 $\frac{3}{4}$ | Do. | . | Capt. the Hon. G. H. Douglas Pennant. |
| 27 $\frac{3}{4}$ | 21 | 6 | 9 $\frac{1}{2}$ | Do. | . | Lieut.-Col. the Hon. W. A. W. Lawson. |
| 27 $\frac{3}{4}$ | 23 | 5 $\frac{3}{4}$ | 18 | Do. | . | Hon. Mrs. Blyth. |
| 27 $\frac{3}{4}$ | 23 $\frac{1}{4}$ | 6 | 13 $\frac{1}{2}$ | Do. | . | Major H. F. T. Fisher. |
| 27 $\frac{3}{4}$ | 21 $\frac{1}{2}$ | 6 | 12 $\frac{1}{4}$ | Do. | . | F. Garside. |
| 27 $\frac{1}{2}$ | 22 $\frac{1}{4}$ | 5 $\frac{3}{4}$ | 15 $\frac{1}{4}$ | Do. | . | Major S. Belfield. |
| 27 $\frac{1}{2}$ | 23 $\frac{1}{4}$ | 5 $\frac{3}{4}$ | 12 $\frac{3}{4}$ | Do. | . | Rhys Williams. |
| 27 $\frac{1}{2}$ | 22 $\frac{1}{4}$ | 6 | 11 $\frac{3}{4}$ | Do. | . | F. C. Selous. |
| 27 $\frac{1}{2}$ | 21 $\frac{1}{2}$ | 5 $\frac{3}{4}$ | 13 $\frac{1}{2}$ | Do. | . | Lord Hindlip. |
| 27 $\frac{1}{2}$ | 21 | 5 $\frac{7}{8}$ | 14 $\frac{1}{4}$ | South Africa | . | British Museum (Dr. Burchell). |
| 27 $\frac{1}{2}$ | 23 | 6 | 19 $\frac{1}{2}$ | East Africa | . | G. C. Whitaker. |
| 27 $\frac{1}{2}$ | 22 $\frac{1}{4}$ | 6 $\frac{1}{4}$ | 14 $\frac{3}{4}$ | Do. | . | A. Brocklehurst. |
| 27 $\frac{1}{2}$ | 22 $\frac{3}{8}$ | 6 $\frac{1}{4}$ | 10 $\frac{1}{2}$ | Do. | . | Major C. U. Price. |
| 27 $\frac{1}{2}$ | 23 $\frac{1}{8}$ | 6 | 18 $\frac{3}{4}$ | Do. | . | A. Bayley-Worthington. |
| 27 $\frac{1}{2}$ | 21 $\frac{1}{2}$ | 6 $\frac{1}{8}$ | 10 $\frac{3}{4}$ | Do. | . | G. de P. Colville. |
| 27 $\frac{1}{2}$ | 23 $\frac{1}{2}$ | 5 $\frac{3}{8}$ | 21 $\frac{1}{2}$ | Do. | . | H. C. Phipps. |
| 27 $\frac{3}{8}$ | 21 $\frac{5}{8}$ | 6 | 12 | Do. | . | G. M. Spencer Smith. |
| 27 $\frac{3}{8}$ | 24 | 6 | 15 | Do. | . | Major C. S. Cumberland. |
| 27 $\frac{3}{8}$ | 23 $\frac{3}{4}$ | 6 $\frac{1}{2}$ | 18 | Do. | . | H. Robinson. |

| Length. | | | | | |
|------------------|------------------|-----------------|------------------|-------------|--------------------------------------|
| On front curve. | Straight. | Circumference. | Tip to Tip. | Locality. | Owner. |
| 27 $\frac{1}{4}$ | 22 $\frac{1}{2}$ | 6 | 17 $\frac{3}{4}$ | East Africa | A. Vonwiller. |
| 27 $\frac{1}{4}$ | 22 | 6 $\frac{1}{4}$ | 15 $\frac{5}{8}$ | Do. | J. N. Draeopoli. |
| 27 $\frac{1}{4}$ | 22 $\frac{1}{2}$ | 5 $\frac{3}{4}$ | 10 $\frac{1}{2}$ | Do. | Major. J. A. Hannynnton. |
| 27 $\frac{1}{4}$ | 21 | 6 $\frac{1}{4}$ | 8 $\frac{1}{2}$ | Do. | A. H. Wheeler. |
| 27 $\frac{1}{4}$ | 22 $\frac{3}{4}$ | 6 | 12 $\frac{1}{2}$ | Do. | Gorham Brooks. |
| 27 $\frac{1}{4}$ | 23 | 6 | 20 $\frac{1}{4}$ | Do. | Stephenson R. Clarke. |
| 27 $\frac{1}{4}$ | 21 $\frac{3}{4}$ | 5 $\frac{1}{2}$ | 19 | Do. | F. C. Selous. |
| 27 $\frac{1}{4}$ | 21 $\frac{1}{4}$ | 6 $\frac{1}{2}$ | 10 $\frac{1}{4}$ | Do. | Capt. G. A. Swinton Home. |
| 27 $\frac{1}{4}$ | 21 $\frac{1}{2}$ | 6 $\frac{1}{4}$ | 15 $\frac{1}{4}$ | Do. | E. H. Lichfield. |
| 27 $\frac{1}{4}$ | 22 $\frac{3}{4}$ | 6 $\frac{1}{2}$ | 16 $\frac{3}{4}$ | Do. | C. C. Branch. |
| 27 | 22 $\frac{3}{4}$ | 6 $\frac{1}{4}$ | 17 $\frac{1}{2}$ | Do. | T. P. Kempson. |
| 27 | 21 $\frac{1}{2}$ | 6 $\frac{1}{4}$ | 12 $\frac{1}{2}$ | Do. | G. Crompton. |
| 27 | 22 $\frac{1}{2}$ | 5 $\frac{1}{4}$ | 20 $\frac{3}{4}$ | Do. | C. Bower Ismay. |
| 27 | 22 $\frac{1}{2}$ | 6 | 14 $\frac{1}{2}$ | Do. | E. B. Horne. |
| 27 | 21 $\frac{1}{2}$ | 6 | 11 | Do. | Col. A. Colville. |
| 27 | 21 $\frac{1}{4}$ | 6 $\frac{1}{4}$ | 15 | Do. | Col. J. E. Gough. |
| 27 | 21 $\frac{1}{4}$ | 6 | 14 $\frac{3}{4}$ | Do. | Lieut.-Col. C. F. Blane. |
| 27 | 22 $\frac{1}{4}$ | 6 | 16 | Do. | Hon. Walter Rothschild. |
| 27 | 22 $\frac{1}{4}$ | 6 | 10 $\frac{3}{4}$ | Do. | Major A. E. Smith. |
| 27 | 21 $\frac{1}{2}$ | 6 | 16 $\frac{3}{4}$ | Do. | American National Collection. |
| 27 | 22 $\frac{1}{2}$ | 6 $\frac{1}{4}$ | 14 $\frac{3}{4}$ | Do. | Childs Frick. |
| 26 $\frac{3}{4}$ | 22 | 6 | 10 $\frac{1}{2}$ | Do. | H. Fowler. |
| 26 $\frac{3}{4}$ | 22 $\frac{1}{4}$ | 6 $\frac{1}{4}$ | 14 $\frac{3}{4}$ | Do. | W. J. Chapman. |
| 26 $\frac{3}{4}$ | 22 $\frac{1}{2}$ | 6 | 13 $\frac{1}{2}$ | Do. | P. B. Vander Byl. |
| 26 $\frac{3}{4}$ | 21 $\frac{3}{4}$ | 5 $\frac{1}{4}$ | 14 $\frac{3}{4}$ | Do. | J. R. Baas. |
| 26 $\frac{3}{4}$ | 21 | 6 $\frac{1}{2}$ | 16 $\frac{1}{2}$ | Do. | W. F. Wailes-Fairbairn. |
| 26 $\frac{3}{4}$ | 22 $\frac{3}{4}$ | 6 | 19 $\frac{1}{2}$ | Do. | R. J. Cuningham. |
| 26 $\frac{3}{4}$ | 22 | 6 | 20 | Do. | Lieut.-Col. J. W. Yardley. |
| 26 | 20 $\frac{3}{4}$ | 5 $\frac{1}{4}$ | 22 $\frac{3}{4}$ | Do. | H. R. H. Prince Arthur of Connaught. |

B.—ANGOLA RACE (*Æ. melampus petersi*).

| On front curve. | Length. Straight. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------|----------------------|-----------------|------------------|-------------------|----------------------------|
| 23 $\frac{3}{4}$ | 19 $\frac{3}{4}$ | 6 | 14 $\frac{3}{8}$ | Angola | C. W. Sharp. |
| 23 $\frac{1}{2}$ | 19 $\frac{1}{2}$ | 5 $\frac{1}{2}$ | 13 $\frac{3}{4}$ | Do. | Sir Edmund G. Loder, Bart. |
| 23 $\frac{1}{4}$ | ... | 5 $\frac{1}{2}$ | 15 | Do. | A. H. Harrison. |
| 23 $\frac{1}{4}$ | 18 $\frac{1}{2}$ | 5 $\frac{3}{8}$ | 9 $\frac{1}{2}$ | Do. | W. C. Neilson. |
| 21 $\frac{1}{4}$ | 18 | 5 $\frac{1}{4}$ | 19 $\frac{1}{4}$ | S.W. Africa . . . | A. N. Henderson. |
| 21 | 17 $\frac{1}{2}$ | 5 $\frac{1}{2}$ | 11 $\frac{3}{4}$ | Angola | Hon. Walter Rothschild. |

The following specimens belong to the British Central African type, at one time regarded as a distinct race :—

| Length. | | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|--------------------|------------------|---------------------|------------------|----------------------------|----------------------|
| On front curve. | Straight. | | | | |
| 22 $\frac{1}{2}$ | 18 $\frac{1}{4}$ | 5 $\frac{1}{4}$ | 9 $\frac{1}{2}$ | N.W. Rhodesia . . . | H. D. Hannay. |
| 22 | 18 $\frac{1}{4}$ | 5 $\frac{1}{4}$ | 11 | British Central Africa . . | A. V. Willcox. |
| 21 | 18 $\frac{1}{2}$ | 4 $\frac{3}{4}$ | 11 $\frac{3}{4}$ | Do. . . | Capt. J. S. Brogden. |
| 20 | 16 | 5 $\frac{1}{4}$ | 8 $\frac{1}{2}$ | N.E. Rhodesia . . . | F. H. Melland. |
| 20 | 16 | 5 | 6 $\frac{1}{2}$ | Do. . . | H. Cookson. |
| 19 $\frac{3}{4}$ | 16 $\frac{1}{2}$ | 5 $\frac{1}{8}$ | 6 $\frac{5}{8}$ | N.W. Rhodesia . . . | Major J. Carden. |
| 19 $\frac{1}{4}$ | 15 $\frac{3}{4}$ | 4 $\frac{1}{4}$ | 7 $\frac{1}{2}$ | N.E. Rhodesia . . . | Col. A. Colville. |
| 19 | 15 $\frac{1}{4}$ | 5 $\frac{1}{4}$ | 6 $\frac{3}{4}$ | N.W. Rhodesia . . . | J. Ripley. |



Horns of Saiga. From the Hon. Walter Rothschild's specimen.

The SAIGA (*Saiga tatarica*).

One of the most remarkable of all antelopes is the Central Asian saiga, which differs from most of its kindred by the inflated and puffy nose. This forms a kind of trunk, comparable to that of the dik-diks, with the nostrils directed downwards. The tail is short, and lateral hoofs are present. In summer the colour is dull yellowish above and whitish beneath, but in winter the whole coat is uniformly whitish. The short and blunt ears are thickly covered with hair, and the horns of the males pale amber-colour. Height at shoulder about 30 inches.

Distribution.—The steppes of Southern Russia and South-Eastern Siberia. Formerly the range extended to the confines of Poland, but the species is now restricted to the Kalmuk Steppes between the rivers Don and Volga and Siberia.

| Length on front curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|------------------------------|---------------------|-----------------|---------------------------------|--|
| 14 $\frac{3}{4}$ | 5 $\frac{1}{4}$ | 3 $\frac{1}{2}$ | Siberia | Hon. Walter Rothschild. (See illustration.) |
| 13 $\frac{1}{2}$ | 5 | ... | Volga Steppe | Sir Edmund G. Loder, Bart. |
| 13 $\frac{1}{2}$ | 4 $\frac{3}{4}$ | 3 $\frac{1}{2}$ | ? | Sir Victor Brooke's Collection. |
| 13 $\frac{5}{8}$ | 5 | 5 $\frac{1}{2}$ | Sarepta, South Russia | British Museum. |
| -12 $\frac{3}{4}$ | 5 | 2 | ? | Imperial Museum, Vienna. |
| -12 $\frac{1}{2}$ | 5 | 4 $\frac{1}{4}$ | Siberia | Dublin Museum. |
| 12 $\frac{1}{4}$ | 5 | 5 $\frac{7}{8}$ | Do. | Duke of Bedford. |

- Owner's measurements.

| Length on front curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|------------------------------|---------------------|-----------------|-----------------|---------------------------|
| 12 $\frac{1}{4}$ | 5 | 4 $\frac{1}{2}$ | Siberia | Rowland Ward. |
| 11 $\frac{1}{2}$ | 4 $\frac{3}{4}$ | 5 $\frac{1}{2}$ | Do. | Dr. Albert von Stephani. |
| 8 $\frac{1}{2}$ | ... | 5 $\frac{1}{4}$ | Do. | Major W. Anstruther Gray. |

- Owner's measurements.



Head of Saiga.



Chiru. Shot by Mr. H. C. V. Hunter.

The CHIRU or TIBETAN ANTELOPE (*Pantholops hodgsoni*).

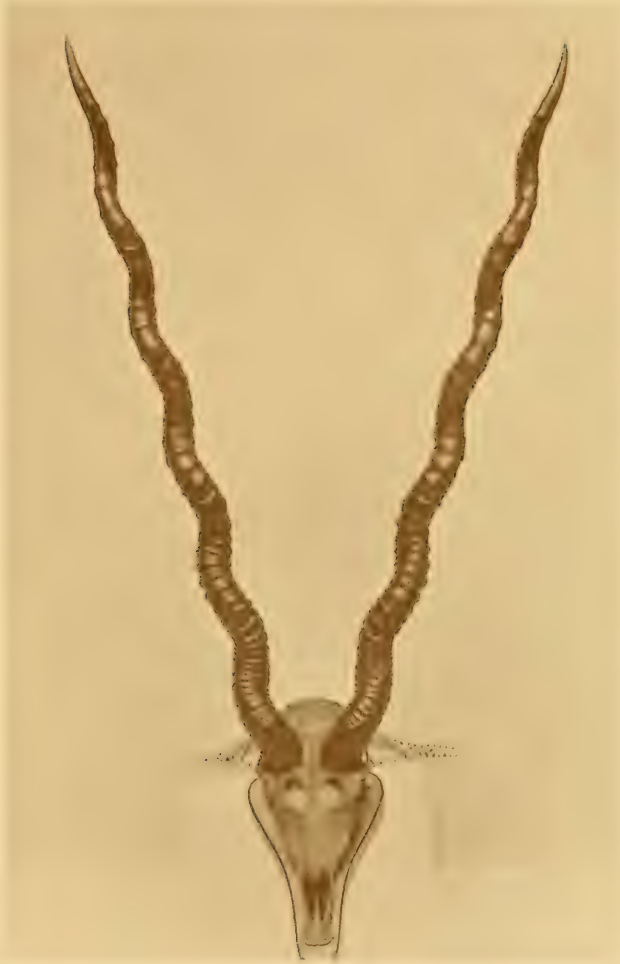
Among several animals peculiar to the Tibetan plateau none is more interesting than the chiru, whose beautiful horns form some of the most cherished trophies of the sportsman. Although very unlike in general appearance, the chiru is a near ally of the saiga, having the nose even more swollen at the sides, at least in the male, but less bent downwards at the tip. The long black horns of the bucks, which are somewhat compressed, rise almost vertically from the head, and are slightly divergent, nearly straight below, but evenly curving forwards above, and ridged in front. General colour of hair, which is very dense and short, pale fawn above, with a pinkish suffusion, but the face and part of the limbs of the males black or dark brown. Height at shoulder about 31 or 32 inches; weight from 90 to 120 lbs. This genus is peculiar in having only two pairs of premolar teeth in each jaw.

Distribution.—The plateau of Tibet, at elevations of from 13,000 to 16,000 feet, or even more; the species associates in pairs or small parties.

RECORDS OF BIG GAME

| Length on front curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|---------------------------|---------------------|------------------|------------------------|--|
| 27 $\frac{1}{4}$ | 6 $\frac{1}{2}$ | 13 $\frac{1}{2}$ | North of Beansi Pass . | A. O. Hume. |
| 27 $\frac{5}{8}$ | 5 $\frac{1}{2}$ | 11 $\frac{1}{4}$ | Tibet | Sir Robert Harvey, Bart. |
| 27 $\frac{1}{8}$ | 5 $\frac{7}{8}$ | 15 $\frac{1}{8}$ | North of Beansi Pass . | A. O. Hume. |
| 27 | 6 | 14 $\frac{1}{2}$ | ? | Hon. Walter Rothschild. |
| 27 | 5 | 13 $\frac{1}{2}$ | Tibet | P. F. Hadow. |
| 27 | 5 $\frac{5}{8}$ | 14 $\frac{1}{4}$ | Do. | Capt. K. Channer. |
| 27 | ... | 12 | ? | J. D. Inverarity. |
| 26 $\frac{3}{4}$ | 6 | 13 $\frac{3}{4}$ | Tibet | Dr. Albert von Stephani. |
| 26 $\frac{3}{4}$ | 6 | 17 | Manasarawar Lake . | Capt. F. M. Bailey. |
| 26 $\frac{1}{2}$ | ... | ... | Chang-chenmo . . | Lieut.-Col. A. E. Ward. |
| 26 | 5 $\frac{1}{4}$ | 11 | Tibet | J. Ff. Darling. |
| 26 | 4 $\frac{7}{8}$ | 12 $\frac{7}{8}$ | Do. | Capt. G. Campbell. |
| 25 $\frac{3}{4}$ | 5 $\frac{1}{2}$ | 12 $\frac{3}{4}$ | ? | Arnold Pike. |
| 25 $\frac{1}{2}$ | 5 $\frac{3}{4}$ | 11 $\frac{1}{2}$ | Tibet | Major C. B. Vandeleur. |
| 25 $\frac{1}{2}$ | 5 $\frac{3}{4}$ | 13 $\frac{3}{4}$ | ? | W. H. Wilson. |
| 25 $\frac{1}{2}$ | 5 $\frac{1}{2}$ | 12 | ? | Major F. W. H. Walshe. |
| 25 $\frac{3}{8}$ | 5 $\frac{5}{8}$ | 12 $\frac{1}{2}$ | North of Leh . . . | British Museum (Hume Collec- tion). |
| 25 $\frac{1}{4}$ | 5 | 10 $\frac{3}{4}$ | Tibet | Major P. H. G. Powell-Cotton. |
| 25 | 5 $\frac{3}{4}$ | 11 | Chang-chenmo . . . | Sir Edmund G. Loder, Bart. |
| 24 $\frac{3}{4}$ | 5 | 11 | ? | E. L. Phelps. |
| 24 $\frac{3}{4}$ | 5 $\frac{1}{2}$ | 15 $\frac{1}{2}$ | Tibet | Capt. J. A. Stewart-Balmain. |
| 24 $\frac{1}{2}$ | 4 $\frac{3}{4}$ | . | Do. | Major-General A. A. A. Kinloch. |
| 24 $\frac{1}{2}$ | 5 | 12 $\frac{3}{4}$ | Do. | Capt. H. H. P. Deasy. |
| 24 $\frac{1}{4}$ | 4 $\frac{3}{4}$ | 18 $\frac{1}{4}$ | ? | Capt. D. L. R. Lorimer. |
| 24 $\frac{1}{4}$ | 5 $\frac{1}{4}$ | 13 $\frac{1}{2}$ | ? | Capt. W. F. Corbett. |
| 24 $\frac{1}{4}$ | 5 $\frac{1}{8}$ | 13 $\frac{3}{4}$ | Tibet | Capt. B. H. Shaw-Stewart. |
| 24 | 5 $\frac{1}{2}$ | 15 | ? | Capt. L. Oldfield. |
| 24 | 5 $\frac{1}{4}$ | 11 $\frac{1}{2}$ | Tibet | Sutton Timmis. |
| 24 | 5 | 12 $\frac{1}{2}$ | Do. | C. P. Radclyffe. |

- Owner's measurements.



Skull and Horns of Blackbuck. From Mr. A. O. Hume's specimen.

The BLACKBUCK or INDIAN ANTELOPE (*Antilope cervicapra*).

Although in former days nearly all the then known species of antelopes were included in the genus *Antilope*, the extent of the latter has been gradually whittled down until it now comprises the Indian blackbuck alone. In addition to being the sole representative of the genus, this species is also the type of a sub-family or group of antelopes, embracing the springbuck, gazelles, dibatag, and gerenuk. These are small or medium-sized antelopes, with hairy muzzles, generally short tails, and tall, narrow-crowned cheek-teeth, like those of sheep. In

the springbuck and the majority of the gazelles horns are present in both sexes, but in the rest are confined to the males. From all the other members of this assemblage the blackbuck is distinguished by the beautiful spiral formed by its horns. It has large, expansile face-glands, a short and compressed tail, and lateral hoofs. Height at shoulder about 32 inches; average weight, 85 lbs. It is only in adult males that the characteristic dark tint from which the species takes its name is developed, young males being uniformly brownish fawn above like the does.

Distribution.—India, from the foot of the Himalaya to Cape Comorin, and from the Punjab to Lower Assam; unknown in Ceylon and the countries to the eastward of the Bay of Bengal.

| Length straight. | Circumference. | Tip to Tip. | Locality. | Owner. |
|---------------------------------|----------------|-------------|----------------------------|----------------------------------|
| -30½ | ... | ... | ? | Capt. J. MacRae-Gilstrap. |
| ¹ -28¾ | ... | ... | Jeypore . . . | General Sir B. Blood. |
| 28¼ | 5 | 17¾ | Near Delhi . . . | A. O. Hume. |
| -28 | ... | 20 | Jeypore . . . | Lieut.-Col. P. Durell Pank. |
| -28 | 5 | 15 | Near Ahmedabad . . | T. Le Mesurier. |
| 27¾ | ... | ... | Jeypore . . . | General Sir B. Blood. |
| 27 | 5¾ | 19¾ | Patiala . . . | Major W. Cox. |
| 27 | 4¾ | 16¾ | Bikanir . . . | H.H. the Maharaja of Bikanir. |
| 26¾ | 4¾ | 26 | Ulwar . . . | Lieut.-Col. L. Impey. |
| 26¾ | 4¾ | 25¼ | Bhurlpore, United Province | Lieut.-Gen. Sir E. T. H. Hutton. |
| 26¾ | 5 | 21¾ | Punjab . . . | Capt. R. P. Wemyss Quin. |
| 26½ | 5¼ | 27¾ | United Province . . | Capt. C. B. Oldfield. |
| 26¾ | 5 | 17¾ | Sirsa, Punjab . . . | A. O. Hume. |
| -26¾ | 5 | 19 | Dholpur . . . | Capt. J. S. Hooker. |
| 26 ⁵ / ₁₆ | 5¼ | 22 | Bikanir . . . | Col. G. D. F. Sullivan. |
| 26 ⁵ / ₁₀ | 4½ | 20 | ? | Sir Edmund G. Loder, Bart. |
| 26¼ | 5 | 23½ | Oudh . . . | E. St. J. Lawson. |
| 26 | 5 | 21¾ | Bikanir . . . | Major H. W. Codrington. |
| 26 | 5½ | 19¼ | Do. . . | H.H. the Maharaja of Bikanir. |
| 25¾ | 4¾ | 19 | Jeypore . . . | Hon. A. Holland-Hibbert. |
| 25 ¹ / ₈ | 5¼ | 19 | ? | Lady Jenkins. |

- Owner's measurements.

¹ Measured and recorded by Mr. A. O. Hume, but not now in the possession of General Sir B. Blood.

| Length straight. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|---------------------|---------------------|------------------|-------------------|-----------------------------------|
| 25 $\frac{1}{2}$ | 4 $\frac{7}{8}$ | 18 | Punjab . . . | Lieut.-Col. R. H. Rattray. |
| 25 $\frac{3}{8}$ | 5 $\frac{1}{2}$ | 14 $\frac{1}{2}$ | Sirsa, Punjab . . | British Museum (Hume Collection). |
| 25 $\frac{1}{4}$ | 4 $\frac{3}{4}$ | 19 | Jeypore . . . | A. B. Graves. |
| 25 $\frac{1}{8}$ | 5 $\frac{1}{8}$ | 15 | Kathiawar . . . | Lieut.-Col. L. L. Fenton. |
| 25 | 5 | 18 $\frac{1}{4}$ | ? | Lieut.-Col. H. G. Mainwaring. |
| 24 $\frac{3}{4}$ | 5 | 20 | Jeypore . . . | Lieut.-Col. J. B. Buchanan. |
| 24 $\frac{3}{4}$ | 4 $\frac{1}{2}$ | 17 $\frac{1}{4}$ | Dholpur . . . | A. J. Coppinger. |
| 24 $\frac{1}{2}$ | 5 $\frac{1}{2}$ | 18 $\frac{1}{4}$ | ? | Capt. G. S. Bull. |
| 24 $\frac{1}{2}$ | 5 | 15 | ? | The Earl of Minto. |
| 24 $\frac{3}{8}$ | 5 $\frac{1}{4}$ | 16 $\frac{1}{4}$ | ? | H.H. Crown Prince of Bhopal. |
| 24 $\frac{1}{4}$ | 5 $\frac{1}{2}$ | 18 $\frac{1}{2}$ | ? | Col. the Hon. C. E. Bingham. |
| 24 $\frac{1}{4}$ | 5 | 18 $\frac{1}{2}$ | ? | Marquis of Ailsa. |
| 24 $\frac{1}{4}$ | 5 $\frac{1}{4}$ | 20 | Dholpur . . . | D. B. Edwards. |



Head of Blackbuck.



Horns of Springbuck. From Mr. F. H. Barber's specimen.

The SPRINGBUCK (*Antidorcas euchores*).

Springbok, Cape Dutch.

Itsaypi, Maklaka.

Tsipi, Bechuana.

Menya, Angola.

Although nearly allied to the gazelles, both in bodily form, coloration, and the shape of the horns, the springbuck presents a peculiarity entitling it to be regarded as the representative of a genus by itself. This peculiarity is the presence of a fold, or narrow pouch, running down the middle of the hinder part of the back, and lined with long pure white hairs. In periods of excitement this pouch is capable of being turned partially inside-out, when the long white hairs are erected, and give a totally different appearance to this region of the animal. Owing to the dark nose-streak stopping short at the level of the eyes, the springbuck has more white on the face than is the case with the majority of gazelles; and the white on the rump, which includes the tail and joins that of the middle of the back, also occupies a larger area. Height at shoulder, 30 inches. Weight from 70 to 80 lbs.

Distribution.—The plains of Southern Africa, extending in the central districts of the continent to about latitude 20° S., where its limits are defined by the forests to the south of the Mabebi River; in the west ranging as far north as Mossamedes and Benguela in Southern Angola, and in the east at least up to the Limpopo. Although now never found in the countless thousands which formerly swarmed over

the plains of the Transvaal and Bechuanaland, springbuck are still abundant in many districts. Protected to a certain degree by law, they are to be met with in parts of Cape Colony and the Orange River Colony; while on the plains bordering the Botliti and the neighbouring salt-pans, as well as in Great Namaqualand, Damara-land, and the Ovampo Flats, they occur in large numbers. Springbuck-stalking on the open veldt affords excellent rifle-practice; zest being added to the sport from the fact that the venison is most excellent for the table.

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|-----------------|------------------|-------------------------|--|
| 19 $\frac{3}{8}$ | 6 | 7 $\frac{1}{4}$ | Near Beaufort West | W. H. Allhusen. |
| ¹ 19 | 5 | 20 $\frac{1}{4}$ | Kalahari | The late W. F. Webb. |
| -18 $\frac{3}{8}$ | ... | 12 $\frac{1}{2}$ | ? | P. C. Keytel. |
| -17 | ... | ... | Middelburg Flats | American National Collection. (See illustration, page 238.) |
| 16 $\frac{3}{4}$ | 6 | 6 | ? | J. Rosen. |
| -16 $\frac{1}{2}$ | ... | ... | Bechuanaland | Vryburg Club. |
| 16 | 6 | 7 | ? | W. A. Simpson Hinchliffe. |
| 16 | ... | 6 $\frac{1}{2}$ | Griqualand West | Capt. G. S. Leslie. |
| -15 $\frac{3}{4}$ | 5 $\frac{3}{4}$ | 2 $\frac{1}{8}$ | German S.W. Africa | H.R.H. Prince George of Bavaria. |
| 15 $\frac{1}{2}$ | 6 $\frac{1}{2}$ | 7 $\frac{1}{4}$ | ? | Hon. T. Thynne. |
| 15 $\frac{1}{2}$ | 6 $\frac{1}{4}$ | 5 | ? | Abe Bailey. |
| 15 $\frac{1}{2}$ | 6 $\frac{1}{2}$ | ... | ? | Dr. Maloney. |
| 15 $\frac{1}{2}$ | 6 $\frac{1}{8}$ | 3 $\frac{1}{2}$ | Cape Colony | C. D. Rudd. |
| 15 $\frac{1}{2}$ | 6 | 2 $\frac{3}{4}$ | S. of Great Namaqualand | Th. Rehbock. |
| 15 $\frac{1}{4}$ | 5 $\frac{1}{2}$ | 7 | Orange River Colony | Sir H. J. Goold-Adams. |
| 15 $\frac{1}{4}$ | 6 $\frac{1}{2}$ | 3 $\frac{3}{4}$ | ? | Sir Edmund G. Loder, Bart. |
| 15 $\frac{1}{8}$ | 5 $\frac{1}{2}$ | 7 | ? | Major W. Anstruther Gray. |
| 15 $\frac{1}{8}$ | 6 $\frac{1}{4}$ | 5 $\frac{1}{8}$ | Ovampo Flats | The late Capt. F. Cookson. |
| 15 | 5 $\frac{3}{4}$ | 7 | ? | George Grey. |
| 15 | 5 $\frac{1}{2}$ | 8 $\frac{1}{4}$ | ? | Major E. J. Lugard. |
| 14 $\frac{1}{2}$ | 5 $\frac{3}{4}$ | 4 $\frac{1}{2}$ | ? | C. L. Blundell. |
| 14 $\frac{1}{4}$ | 6 $\frac{1}{4}$ | 5 | ? | C. Ansell. |
| 14 $\frac{1}{4}$ | 6 | 2 $\frac{3}{4}$ | ? | C. Challis. |
| 14 | 6 | 2 $\frac{1}{4}$ | Ngamiland | F. T. Garbutt. |

- Owner's measurements.

¹ A malformed specimen.

| Length on front curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|---------------------------|---------------------|-----------------|-----------------------|-------------------------------|
| 14 | 5 $\frac{1}{4}$ | 4 $\frac{1}{4}$ | ? | British Museum. |
| 14 | 6 | 3 | ? | Hon. J. C. Lyttelton. |
| 14 | 5 $\frac{1}{2}$ | 5 | ? | F. E. Potter. |
| 13 $\frac{1}{2}$ | 6 | 5 $\frac{3}{4}$ | Griqualand . . . | F. C. Selous. |
| 13 $\frac{1}{4}$ | 6 | 5 $\frac{3}{4}$ | ? | Earl of Kingston. |
| 13 $\frac{5}{8}$ | 5 $\frac{1}{4}$ | 5 $\frac{3}{4}$ | Benguela . . . | G. W. Penrice. |
| 13 $\frac{5}{8}$ | 5 $\frac{1}{2}$ | 4 $\frac{1}{4}$ | Angola . . . | C. W. Sharp. |
| 13 $\frac{1}{2}$ | 5 $\frac{1}{4}$ | 3 $\frac{1}{4}$ | Orange River Colony . | Capt. V. C. de Crespigny. |
| 13 $\frac{1}{2}$ | 5 $\frac{1}{2}$ | 5 | Angola . . . | A. H. Harrison. |
| 13 $\frac{1}{2}$ | 5 $\frac{1}{2}$ | 5 | Ngamiland . . . | H. A. Bryden. |
| ♀ 13 $\frac{1}{2}$ | 4 | 6 $\frac{3}{4}$ | ? | Abe Bailey. |
| ♀ 13 | ... | ... | Middelburg Flats . . | American National Collection. |
| ♀ 11 $\frac{1}{2}$ | 3 | 6 $\frac{1}{4}$ | Angola . . . | C. W. Sharp. |

- Owner's measurements.



Head of Springbuck.



Head of Goa.

The GOA or TIBETAN GAZELLE (*Gazella picticaudata*).

The true gazelles form an extensive group of delicately-built antelopes, of medium or rather small size, with the muzzle of ordinary shape, the neck not unduly elongated, and no fold containing a crest of long erectile hairs running down the middle of the back. To suit the nature of their haunts, their coloration is generally of a sandy hue, with the underparts white, and the face in most cases marked with parallel dark and light longitudinal streaks; dark bands being also frequently present on the rump and on the flanks to separate the tawny of the back from the white beneath. The knees are very generally furnished with brush-like tufts of long, stiff hairs, and the tail is either short or of medium length. With the exception of a few species, horns are present in both sexes; those of the males being stout, distinctly ridged, and generally of about the same length as the head, although occasionally much longer. Except at the tips, they curve backwards, so as to present an anteriorly convex lower portion, above which they are generally more or less curved forwards and upwards. Gazelles have a wider geographical distribution than any other genus of antelopes, and are, for the most part, inhabitants of more or less desert regions, or their confines.

The Tibetan goa belongs to a small group of the genus in which the tail is very short, the usual dark and light streaks on the face are generally wanting, and the females are mostly hornless. As a species, it is distinguished by its comparatively small size, and the strongly marked backward curvature of the horns, which are not hooked at the

tips, as well as by the large size of the white rump-patch, the pale colour of the coat, and the absence of face-glands. Height at shoulder about 24 or 25 inches. Weight about 45 lbs.

Distribution.—The plateau of Tibet and some of the adjacent parts of Central Asia.

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|--------------------------------|-----------------|-----------------|--------------------|-----------------------------------|
| 14 $\frac{1}{8}$ | 3 $\frac{5}{8}$ | 2 | Hanle, Spiti . . . | Hon. Walter Rothschild. |
| 13 $\frac{3}{4}$ | 3 $\frac{1}{2}$ | 8 $\frac{3}{4}$ | Gyantse | Capt. R. S. Kennedy. |
| 13 $\frac{3}{4}$ | 3 $\frac{3}{4}$ | 3 | Ladak | Major G. F. Mockler. |
| 13 $\frac{1}{2}$ | 3 $\frac{5}{8}$ | 5 $\frac{1}{4}$ | N. of Sikkim . . . | British Museum (Hume Collection). |
| 13 $\frac{1}{2}$ | 3 $\frac{3}{4}$ | 5 | Tibet | C. Hamilton. |
| 13 $\frac{1}{4}$ | 3 $\frac{1}{2}$ | 3 | Ladak | Major H. W. Codrington. |
| 13 $\frac{1}{4}$ | 3 $\frac{1}{2}$ | 6 $\frac{1}{8}$ | Do. . . . | Capt. F. M. Bailey. |
| 13 $\frac{1}{8}$ | 4 $\frac{1}{4}$ | 3 $\frac{3}{4}$ | Do. . . . | Capt. Neill Malcolm. |
| 13 $\frac{1}{8}$ | 4 | 3 $\frac{5}{8}$ | Tibet | H. C. V. Hunter. |
| 13 $\frac{1}{8}$ | 3 $\frac{5}{8}$ | 6 $\frac{1}{4}$ | S. E. of Hanle . . | Major P. H. G. Powell-Cotton. |
| 13 | 3 $\frac{3}{4}$ | 5 $\frac{3}{4}$ | Tibet | Bombay Natural History Society. |
| 13 | 4 $\frac{1}{8}$ | 4 $\frac{1}{2}$ | East Ladak . . . | Col. J. Biddulph. |
| 13 | 3 $\frac{3}{4}$ | 1 $\frac{1}{2}$ | ? | Major C. B. Vandeleur. |
| 13 | 3 $\frac{7}{8}$ | 4 $\frac{5}{8}$ | ? | Capt. W. T. Hodgson. |
| 13 | 3 $\frac{3}{8}$ | 4 $\frac{1}{4}$ | Tibet | P. K. Wise. |
| 13 | 3 $\frac{3}{4}$ | 5 $\frac{3}{8}$ | N. of Sikkim . . . | Major A. Pearse. |
| 12 $\frac{1}{2}$ $\frac{5}{8}$ | 3 $\frac{5}{8}$ | 4 | Tibet | Officers' Mess, 3rd Gurka Rifles. |
| 12 $\frac{2}{3}$ | 3 $\frac{7}{8}$ | 4 $\frac{1}{4}$ | Hills N. of Kumaon | A. O. Hume. |
| 12 $\frac{3}{4}$ | 3 $\frac{3}{4}$ | 6 $\frac{1}{2}$ | ? | E. M'Clellan. |
| 12 $\frac{3}{4}$ | 4 | 6 $\frac{1}{4}$ | Ladak | Baroda State Museum. |
| 12 $\frac{3}{4}$ | 4 | 4 $\frac{3}{4}$ | Do. . . . | Lord Stavordale. |
| 12 $\frac{5}{8}$ | 3 $\frac{1}{2}$ | 2 $\frac{1}{4}$ | Do. . . . | K. C. Zarzhetsky. |
| 12 $\frac{1}{2}$ | 3 $\frac{3}{8}$ | 5 | Do. . . . | Dr. T. G. Longstaff. |
| 12 $\frac{1}{2}$ | 3 $\frac{7}{8}$ | 2 $\frac{1}{2}$ | ? | Major Lord Charles Fitzmaurice. |
| 12 $\frac{1}{2}$ | 3 $\frac{1}{2}$ | ... | ? | G. W. Grabham. |
| 12 $\frac{3}{8}$ | 3 $\frac{1}{2}$ | 5 $\frac{1}{2}$ | South of Hanle . . | Col. F. C. Lister-Kay. |
| 12 $\frac{1}{4}$ | 3 $\frac{3}{4}$ | 2 $\frac{1}{2}$ | ? | T. R. Ubsdell. |
| 12 $\frac{1}{4}$ | 3 $\frac{1}{2}$ | 6 $\frac{1}{4}$ | Ladak | David T. Hanbury. |
| 12 $\frac{1}{4}$ | 3 $\frac{3}{4}$ | 4 | Tibet | W. A. Conduitt. |
| 12 $\frac{1}{4}$ | 3 $\frac{3}{4}$ | 4 $\frac{1}{2}$ | Do. . . . | Capt. F. G. T. Deshon. |

— Owner's measurements.

PRZEWALSKI'S GAZELLE (*Gazella przewalskii*).

Nearly allied to the goa, from which it differs by its rather larger size, and the distinct hooks formed by the tips of the horns of the bucks. General colour in summer, deep fawn; in winter, pale finely grizzled fawn; white of buttocks running up in an angle on each side of the tail, which is very short, and almost concealed by the fur. Front of limbs more or less brown; no tufts of hair on the knees.

Distribution.—Mongolia.

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|------------------|-----------------|----------------|--|
| 10 $\frac{1}{4}$ | 4 $\frac{3}{8}$ | 2 $\frac{3}{4}$ | ? | British Museum. |
| 10 | 4 | 4 $\frac{5}{8}$ | ? | H. R. H. Henri de Bourbon, Comte de Bardi. |
| 9 $\frac{3}{4}$ | 4 $\frac{1}{8}$ | 4 $\frac{3}{8}$ | North of Pekin | British Museum (R. Swinhoe). |
| -81 $\frac{1}{16}$ | 3 $\frac{5}{16}$ | 4 $\frac{3}{8}$ | North China | Paris Museum (Père A. David). |

— Owner's measurements.

The MONGOLIAN GAZELLE (*Gazella gutturosa*).*Hwang-yang*, Mongolian.

Belonging to the same group of the genus as the goa, this much larger species takes its name from the swollen condition of the throat of the bucks during the pairing-season. In addition to its size (height at shoulder about 30 inches), it is characterised by the comparatively slight backward curvature of the light brown horns, which are relatively small and not hooked at the tips; the general colour of the upper-parts and fronts of the legs in summer being pale fawn, with the front of the face light brown, and the white of the rump reaching to the sides of the short tail. The ears are relatively small.

Distribution.—Northern and Eastern Mongolia, the southern borders of Russian Transbaikalia. This gazelle was named by the Russian traveller Pallas in 1777.



Skull and Horns of Mongolian Gazelle.

| Length on front curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|---------------------------|---------------------|-----------------|-----------------------|---|
| 15 $\frac{3}{4}$ | 5 | 6.34 | Lob Nor . . . | A. O. Hume. |
| 15 $\frac{1}{8}$ | 4 $\frac{1}{4}$ | 7 $\frac{1}{4}$ | Dscheran . . . | Dr. Albert von Stephani. |
| 14 $\frac{5}{8}$ | 3 $\frac{7}{8}$ | 4 $\frac{3}{4}$ | Lob Nor . . . | Paris Museum (Prince Henri d'Orléans). |
| 13 $\frac{3}{4}$ | 4 $\frac{1}{2}$ | 6 | Saissan, West Siberia | British Museum (Dr. O. Finsch). |
| 13 $\frac{1}{2}$ | 4 $\frac{3}{8}$ | 6 $\frac{3}{8}$ | ? | Lieut.-Col. W. D. Bruce. |

- Owner's measurements.



Skulls and Horns of Saikik and Goitred Gazelles. The specimen in the left top corner and lower central figure alone belong to the Goitred Gazelle. All are in the Collection of Mr. A. O. Hume,

The GOITRED GAZELLE (*Gazella subgutturosa*).

Related to the Mongolian species, but distinguished by its smaller size, longer tail of which the upper surface is crested with black, and the presence of dark and light markings on the face. These face-markings differ, however, from those of other species, except *G. marica* of Arabia, in that the upper portion of the face is white, so that the central dark band is interrupted on the forehead. Horns are absent in the female, and those of the males are relatively larger and more divergent than in *gutturosa*. The rump-patch extends to the root of the tail, and the ears are small. Height at shoulder from 24 to 25 inches. The larynx is swollen, forming a prominence on the front of the upper part of the throat of the bucks. The Marica gazelle is larger, with horns in the female.

There are two races of this gazelle, the Caspian and Persian *G. typica*, and the Altai *G. s. sairensis*, in which the size is large, but the horns are relatively small.

Distribution.—Western Asia from Asia Minor and Caucasia in the west to Persia and the Altai.

A.—TYPICAL RACE.

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|-----------------|-----------------|------------------------|---------------------------|
| 15 $\frac{3}{4}$ | 4 $\frac{3}{4}$ | 4 $\frac{1}{2}$ | Persia . . . | Sir W. Preece. |
| 14 $\frac{3}{4}$ | 4 $\frac{1}{2}$ | 9 $\frac{1}{2}$ | ? | Hon. Walter Rothschild. |
| 14 $\frac{1}{4}$ | 5 | 7 $\frac{3}{4}$ | N. Persia . . . | Capt. C. T. Daukes. |
| 14 $\frac{1}{4}$ | 4 $\frac{1}{4}$ | 3 | Wana Plain, Waziristan | A. J. Grant. ¹ |
| 14 | 4 | 3 $\frac{1}{8}$ | N. Persia . . . | Major R. L. Kennion. |
| 13 $\frac{1}{4}$ | 4 $\frac{1}{4}$ | 4 | Khelat . . . | A. O. Hume. ¹ |
| 13 | 4 $\frac{3}{4}$ | 4 $\frac{1}{4}$ | Persia . . . | E. Rennie. |

B.—ALTAI RACE.

| | | | | |
|------------------|-----------------|-----------------|-------------|----------------------------|
| 13 $\frac{3}{4}$ | 4 $\frac{3}{8}$ | 3 $\frac{1}{2}$ | Altai . . . | Sir Edmund G. Loder, Bart. |
| 11 | 4 | 7 | Do. . . . | British Museum (R. Hayne). |
| 11 | 4 $\frac{3}{8}$ | 4 $\frac{3}{8}$ | Do. . . . | St. George Littledale. |
| 11 | 4 $\frac{1}{2}$ | 6 $\frac{1}{4}$ | Do. . . . | A. Louw. |
| 10 $\frac{7}{8}$ | 4 | 6 $\frac{5}{8}$ | Do. . . . | P. B. Vander Byl. |
| 10 $\frac{1}{2}$ | 4 | 5 $\frac{1}{8}$ | Do. . . . | Hon. Walter Rothschild. |

¹ Doubtfully referred to this species.

The SAIKIK GAZELLE (*Gazella yarcandensis*).

Saikik, Turki.

A larger specimen than the goitred gazelle, standing some 27 or 28 inches, with the ears much longer, the face-markings distinct, and the general colour darker. The horns are distinctly turned in at the tips, and present only in the bucks; and the white markings on the rump are extensive.

The Seistan gazelle (*G. seistanica*) of Eastern Persia differs by the much smaller extent of the white on the rump, which does not reach the root of the tail, and the white muzzle.

Distribution.—Kashgaria, and occasionally the Kulja district.

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|----------------|----------------|-------------------------|---------------------------------------|
| 17 | $4\frac{1}{2}$ | $6\frac{7}{8}$ | Kulja . . . | Sir Edmund G. Loder, Bart. |
| 16 | 5 | $3\frac{1}{4}$ | Yarkand . . . | A. O. Hume. |
| $15\frac{1}{4}$ | ... | 5 | Maralbashi . . . | Sir H. Lennard. |
| $14\frac{3}{4}$ | $4\frac{7}{8}$ | 3 | Chinese Turkestan . . . | Major C. S. Cumberland. |
| $14\frac{1}{4}$ | 5 | $5\frac{1}{4}$ | Tian Shan . . . | G. L. Harrison. |
| 14 | 5 | $5\frac{1}{4}$ | Eastern Turkestan . . . | Col. J. Biddulph. |
| $13\frac{7}{8}$ | $4\frac{3}{4}$ | $7\frac{1}{4}$ | Tian Shan . . . | Capt. J. N. Price Wood. |
| $13\frac{3}{4}$ | 5 | 4 | Chinese Turkestan . . . | J. V. Phelps. |
| $13\frac{3}{4}$ | $4\frac{7}{8}$ | $4\frac{1}{2}$ | Do. . . | E. L. Phelps. |
| $13\frac{1}{2}$ | $4\frac{3}{4}$ | $6\frac{3}{4}$ | Maralbashi . . . | David T. Hanbury. |
| $12\frac{3}{4}$ | $4\frac{3}{4}$ | $5\frac{1}{4}$ | N. Persia . . . | British Museum (Major R. L. Kennion). |

— Owner's measurements.



Skull and Horns of Saikik Gazelle from Kulja, in the possession of Sir Edmund G. Loder, Bart.



Horns of the Edmi Gazelle.

The **EDMI** or **ATLAS GAZELLE** (*Gazella cuvieri*).

A large species with horns in both sexes, and those of the bucks diverging more or less regularly upwards, and not increasing at the tips. There is a blackish spot on the tip of the muzzle, and the coat is rough. General colour dull fawn, with a very indistinct lateral band, well-defined face-markings, the lower portion of the tail crested with black, and the under-parts, buttocks, and inner surfaces of fore-legs white. Height at shoulder 26 to 27 inches. There is no goitre.

Distribution.—The mountains of Morocco, Algeria, and Tunisia, where it is known by the name of edmi or admi.

| Length on front curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|------------------------------|---------------------|-----------------|---------------------|--|
| 14 $\frac{7}{8}$ | 5 | 3 $\frac{5}{8}$ | Algeria | Sir Edmund G. Loder, Bart. |
| 14 $\frac{5}{8}$ | 4 $\frac{3}{4}$ | 4 $\frac{1}{4}$ | N. Tunis | J. I. S. Whitaker. |
| 14 $\frac{9}{16}$ | 4 $\frac{7}{8}$ | 8 | Constantine | British Museum (E. Richardson Cox). |
| 14 $\frac{3}{8}$ | 4 $\frac{3}{8}$ | 7 | Do. | Royal Scottish Museum (E. Richardson Cox). |
| 14 $\frac{1}{4}$ | 3 $\frac{7}{8}$ | 5 $\frac{1}{2}$ | Algeria | A. Louw. |
| 14 $\frac{1}{4}$ | 4 | 3 $\frac{1}{4}$ | Do. | American National Collection. |
| ♀ 13 $\frac{7}{8}$ | 3 $\frac{1}{2}$ | 7 $\frac{1}{8}$ | Do. | E. N. Buxton. |
| 13 $\frac{3}{8}$ | 4 $\frac{1}{2}$ | 7 $\frac{1}{8}$ | Do. | Hon. G. Gordon. |
| 13 | 3 $\frac{1}{4}$ | 6 $\frac{3}{8}$ | Do. | A. F. Williams. |
| 12 $\frac{3}{4}$ | 4 $\frac{3}{8}$ | 3 $\frac{5}{8}$ | Do. | E. N. Buxton. |
| ♀ 11 | 2 $\frac{1}{2}$ | 5 $\frac{7}{8}$ | Do. | J. I. S. Whitaker. |

KENNION'S GAZELLE (*Gazella fuscifrons*).

Nearly allied to the last, which it serves to connect with the Indian gazelle.

Distribution.—Typically Jalk, but ranging over Seistan and Kain to Baluchistan.

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|----------------|-------------|-------------------|-------------------------|
| 14½ | 4½ | 4½ | Baluchistan . . . | Capt. T. W. Greenfield. |
| 12 | 4 | 3½ | Persia . . . | Major R. L. Kennion. |
| 11¾ | 4 | 3¼ | Do. . . | Capt. C. T. Daukes. |



Head of Indian Gazelle. Shot by Capt. Harry V. Brooke.

The CHINKARA or INDIAN GAZELLE (*Gazella bennetti*).

Closely allied to the last species, this gazelle (the ravine-deer of many Anglo-Indian sportsmen) is characterised by the absence of in-turning of the tips of the horns, the restriction of the white on the rump to the back and inner sides of the thighs, so that it does not reach the root of the tail: the height at the shoulder varies from 25 to 26 inches, and the general colour of the upper-parts is dull fawn.

Distribution.—Peninsular India.

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|----------------|-------------|------------------|--------------------|
| 15½ | 4½ | 5½ | ? | Major P. C. Palin. |
| 15½ | 4½ | ... | Ferozepore . . . | 14th Sikhs. |

RECORDS OF BIG GAME

| Length on front curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|---------------------------|---------------------|-----------------|-----------------------|---|
| 15 | 5 | ... | Rajputana . . . | H. H. Maharaj Rana Bahadur of Jhalawar. |
| 14 $\frac{1}{4}$ | 4 $\frac{1}{2}$ | 8 | Punjab . . . | C. H. Shanahan. |
| 14 $\frac{3}{4}$ | 4 $\frac{5}{8}$ | 7 $\frac{1}{4}$ | Sind . . . | Capt. J. L. Sleeman. |
| 14 $\frac{1}{2}$ | 4 $\frac{1}{2}$ | 8 $\frac{5}{8}$ | Dholpur . . . | L. M. le Champion. |
| 14 $\frac{1}{2}$ | 4 $\frac{3}{4}$ | 7 $\frac{1}{8}$ | Patiala . . . | Major J. F. P. Langdon. |
| 14 | 4 $\frac{3}{8}$ | 5 $\frac{3}{4}$ | Ferozepore District . | Capt. Harry V. Brooke. |
| 14 | 3 $\frac{7}{8}$ | 7 $\frac{1}{8}$ | Patiala . . . | Capt. R. P. Wemyss Quin. |
| 13 $\frac{3}{4}$ | 4 $\frac{1}{4}$ | 7 | ? | R. H. Edmondson. |
| 13 $\frac{3}{4}$ | 4 $\frac{3}{8}$ | 8 $\frac{1}{2}$ | Sind . . . | L. Napier. |
| 13 $\frac{5}{8}$ | 4 $\frac{3}{8}$ | 7 $\frac{1}{2}$ | Bikanir . . . | Major C. F. Vander Byl. |
| 13 $\frac{1}{2}$ | 4 $\frac{1}{4}$ | 6 $\frac{3}{8}$ | Muttra, U.P. . . | Major G. F. Mockler. |
| 13 $\frac{3}{8}$ | 4 $\frac{1}{2}$ | 6 $\frac{1}{4}$ | Punjab . . . | R. H. Heath. |
| 13 $\frac{1}{4}$ | 4 | 4 $\frac{1}{4}$ | ? | Sir Edmund G. Loder, Bart. |
| 13 $\frac{1}{4}$ | 4 | 6 $\frac{1}{4}$ | ? | Major O. A. Chambers. |
| 13 $\frac{1}{8}$ | 4 $\frac{1}{2}$ | 6 $\frac{3}{4}$ | ? | 2nd Central Indian Horse. |
| 13 | 3 $\frac{1}{2}$ | 6 | Bikanir . . . | Lieut.-Col. H. C. Morland. |
| 13 | 3 $\frac{3}{4}$ | 6 | ? | Lieut.-Col. R. H. Rattray. |
| 12 $\frac{3}{4}$ | 4 $\frac{1}{4}$ | 5 | Goorgaon, Punjab . | A. O. Hume. |
| 12 $\frac{3}{4}$ | 4 $\frac{3}{8}$ | 7 $\frac{1}{2}$ | ? | H. C. V. Hunter. |
| 12 $\frac{3}{4}$ | 4 $\frac{1}{4}$ | 5 $\frac{7}{8}$ | North Punjab . . | Col. J. Biddulph. |
| 12 $\frac{3}{4}$ | 4 $\frac{1}{4}$ | 7 | ? | Major L. I. B. Hulke. |
| 12 $\frac{3}{4}$ | 4 $\frac{1}{8}$ | 5 $\frac{3}{4}$ | Bikanir . . . | E. N. Jones-Vaughan. |
| 12 $\frac{3}{4}$ | 4 | 6 | Jodhpore . . . | H. H. the Maharaja of Bikanir. |
| 12 $\frac{3}{8}$ | 4 | 5 $\frac{1}{2}$ | Simrol, Bengal . . | British Museum (Colonel Evans). |
| 9 7 $\frac{1}{8}$ | 4 | 2 $\frac{1}{4}$ | ? | Sir Victor Brooke's Collection. |

- Owner's measurements.

The ARABIAN GAZELLE (*Gazella arabica*).

From the edmi the ordinary Arabian race of this gazelle, which comes from Aden, may be distinguished by its smaller size, smoother hair, and darker colour, the general tint of the upper-parts being dark smoky fawn, with a distinct dark flank-band, the central face-band rufous fawn, and a black spot on the tip of the nose. The horns are relatively small. Height at shoulder, 24 or 25 inches. This race has been named *G. a. erlangeri*; the typical *G. a. typica*, which is from the island of Farsan, in the Red Sea, being lighter, with no dark flank-band. The Sinaitic *G. a. rucpelli* is coloured like *dorcas* with the face-markings of *a. erlangeri*; the nose being reddish brown with a distinct blackish spot.

Distribution.—Western and South Arabia, where it is known as ghasal, its Syrian title being ariel or aiel.

| Length on front curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|------------------------------|---------------------|-----------------|-------------------------|----------------------------------|
| 10 $\frac{3}{4}$ | 4 $\frac{3}{4}$ | 4 $\frac{3}{8}$ | Syria | H. H. Youssouf Kamal. |
| 10 $\frac{1}{2}$ | 4 $\frac{1}{8}$ | 4 $\frac{1}{8}$ | S. Arabia | Dr. Albert von Stephani. |
| 8 $\frac{1}{2}$ | 4 | 2 | Mocha, South Arabia . . | British Museum (W. T. Blanford). |
| 9 7 $\frac{1}{2}$ | 2 | 4 $\frac{3}{4}$ | ? | Charterhouse Museum. |
| 4 $\frac{7}{8}$ | 3 $\frac{1}{8}$ | 3 $\frac{5}{8}$ | South Arabia | Sir Victor Brooke's Collection. |
| 9 4 $\frac{1}{2}$ | 1 $\frac{3}{4}$ | 2 $\frac{1}{2}$ | ? | Col. H. G. C. Swayne. |

— Owner's measurements.



Head of Dorcas Gazelle.

The DORCAS GAZELLE (*Gazella dorcas*).*Rozal* or *Hemar*, Algerian Arabic.*Ghasal*, Syria.

Among the characteristics of the present species may be noted the indistinctness of the dark lateral band dividing the fawn of the upper-parts from the white beneath, and the perfectly lyrate form of the horns, which are of medium length, with the middle portion twisted outwardly, and the tips converging towards one another. Height at shoulder, 21 to 22 inches; total length about 42 inches. General colour of upper-parts pale fawn, of rather variable tint, with the face-markings distinct.

Distribution.—The plains of Morocco, Algeria, and thence eastwards through Egypt into Palestine and Syria; southwards to Nigeria and the Sudan.

| Length on front curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|------------------------------|---------------------|-----------------|------------------|----------------------------|
| 13 $\frac{3}{8}$ | 4 $\frac{1}{4}$ | 2 $\frac{3}{4}$ | Kordofan | F. P. Nathan. |
| 13 $\frac{1}{8}$ | 4 | 3 $\frac{1}{2}$ | Syria | H. H. Youssouf Kamal. |
| 13 $\frac{1}{8}$ | 4 $\frac{1}{4}$ | 2 | Algeria | Sir Edmund G. Loder, Bart. |

| Length on roant curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|------------------------------|---------------------|-----------------|------------------------|------------------------------------|
| 13 | 4 $\frac{1}{2}$ | 2 | Sudan | Capt. B. W. Y. Danford. |
| 13 | 4 | 3 $\frac{1}{2}$ | El Obeid, Kordofan . . | Capt. J. G. A. Massy. |
| 12 $\frac{5}{8}$ | 4 | 2 $\frac{1}{2}$ | Sudan | Capt. C. P. Heywood. |
| 12 $\frac{3}{4}$ | 3 $\frac{3}{4}$ | 4 | Algeria | A. Louw. |
| 12 $\frac{1}{2}$ | 4 | 4 $\frac{5}{8}$ | Kordofan | Capt. J. C. Graham. |
| 12 $\frac{3}{4}$ | 4 | 1 $\frac{3}{4}$ | Do. | Lord Villiers. |
| 12 $\frac{5}{8}$ | 3 $\frac{3}{8}$ | 4 $\frac{5}{8}$ | Sudan | Maj.-Gen. B. T. Mahon. |
| 12 $\frac{1}{2}$ | 4 | 3 $\frac{3}{8}$ | Kordofan | Capt. P. E. Vaughan. |
| 12 $\frac{1}{2}$ | 3 $\frac{5}{8}$ | 3 $\frac{3}{4}$ | Southern Sahara . . | J. I. S. Whitaker. |
| 12 $\frac{1}{2}$ | 4 | 2 $\frac{3}{4}$ | Kordofan | Major C. J. Hawker. |
| 12 $\frac{1}{2}$ | 4 $\frac{1}{2}$ | 3 | Do. | Major C. S. Cumberland. |
| 12 $\frac{3}{8}$ | 3 $\frac{3}{8}$ | .. | Southern Sahara . . | British Museum. |
| 12 $\frac{3}{8}$ | 3 $\frac{1}{2}$ | 2 | Sudan | H.H. Prince Omar Toussoun. |
| 12 $\frac{1}{4}$ | 4 $\frac{1}{4}$ | 3 | Palestine | P. B. Vander Byl. |
| 12 $\frac{1}{4}$ | 3 $\frac{3}{4}$ | 5 | Kordofan | G. L. Harrison. |
| 12 $\frac{1}{8}$ | 4 $\frac{1}{4}$ | 3 $\frac{1}{2}$ | Do. | Major J. H. Rivers. |
| 12 | 3 $\frac{1}{2}$ | 3 $\frac{1}{2}$ | Do. | Capt. F. L. Livingstone-Learmonth. |
| 12 | 3 $\frac{1}{2}$ | 3 $\frac{1}{2}$ | Do. | B. Chew. |
| 12 | 3 $\frac{3}{4}$ | 5 $\frac{1}{4}$ | Do. | Sir Robert Harvey, Bart. |
| 12 | 4 | 3 $\frac{1}{4}$ | Southern Sahara . . | J. H. Thomas. |
| 11 $\frac{1}{2}$ | 4 | 4 | Kordofan | Major G. Lumsden. |
| 11 $\frac{1}{2}$ | 4 | 2 | Do. | Capt. C. E. Hills. |
| 11 $\frac{3}{4}$ | 4 $\frac{1}{4}$ | 5 $\frac{1}{8}$ | Do. | Walter Jones. |
| 11 $\frac{3}{4}$ | 4 | 4 | Do. | Norman B. Smith. |
| 9 11 $\frac{1}{4}$ | 2 $\frac{3}{4}$ | 5 $\frac{3}{4}$ | Do. | Major J. H. Rivers. |
| 11 $\frac{1}{4}$ | 4 | 3 $\frac{1}{2}$ | N. Nigeria | C. S. Burnett. |
| 10 $\frac{3}{4}$ | 4 $\frac{1}{4}$ | 2 $\frac{1}{4}$ | Lake Chad | Capt. J. K. Cochrane. |
| 10 $\frac{3}{8}$ | 4 | 3 | N. Nigeria | The late Capt. G. B. Gosling. |
| 9 9 $\frac{3}{4}$ | ... | ... | Algeria | A. E. Pease. |

- Owner's measurements.



Head of Speke's Gazelle.

SPEKE'S GAZELLE (*Gazella spekei*).*Dhero*, Somali.

From the edmi and its allies, with which it agrees in its leading characteristics, this very peculiar gazelle is readily distinguished by the development of a flabby corrugated elevation on the skin of the nose. The coat is thick and the general colour of the upper-parts pale brownish fawn, with the lateral band darker than in the other members of the sub-group. Height at shoulder from 23 to 24 inches.

The protuberance on the nose is connected with the sexual function; in dead specimens it exhibits a slight cavity beneath the skin which can be inflated by blowing air into the nostrils, and it seems therefore capable of distension during life.

Distribution.—The plateau of Somaliland.

| Length on front curve. | Circum- ference. | Tip to Tip. | Owner. |
|------------------------------|---------------------|-----------------|-------------------------------|
| 12 $\frac{1}{2}$ | 4 | 5 $\frac{7}{8}$ | Col. P. Schletter. |
| 11 $\frac{3}{4}$ | 3 $\frac{5}{8}$ | 3 $\frac{3}{8}$ | A. F. Williams. |
| 11 $\frac{3}{4}$ | 3 $\frac{3}{4}$ | 4 $\frac{5}{8}$ | Col. H. G. C. Swayne. |
| 11 $\frac{5}{8}$ | 3 $\frac{3}{4}$ | 2 $\frac{1}{2}$ | Lieut.-Gen. Sir Arthur Paget. |
| 11 $\frac{1}{2}$ | 4 $\frac{3}{8}$ | 2 $\frac{3}{4}$ | T. W. H. Clarke. |
| 11 $\frac{1}{2}$ | 3 $\frac{3}{4}$ | 3 $\frac{3}{4}$ | Capt. A. H. W. Temple. |

| Length on front curve. | Circum- ference. | Tip to Tip. | Owner. |
|------------------------------|---------------------|------------------|-------------------------------|
| 11 $\frac{3}{8}$ | 3 $\frac{7}{8}$ | 2 $\frac{5}{8}$ | Capt. H. du B. O'Neill. |
| 11 $\frac{1}{4}$ | 4 | 4 $\frac{1}{4}$ | Col. H. D. Olivier. |
| 11 $\frac{1}{4}$ | 4 | 4 | W. H. Cobb. |
| 11 $\frac{1}{4}$ | 4 $\frac{1}{8}$ | 4 | Capt. H. W. Thorpe. |
| 11 $\frac{1}{4}$ | 3 $\frac{1}{2}$ | 4 | A. de L. Long. |
| 11 $\frac{1}{4}$ | 4 | 4 | Major P. C. Elliott-Lockhart. |
| 11 $\frac{1}{4}$ | 4 | 4 $\frac{1}{4}$ | Capt. F. R. Tarleton. |
| 11 $\frac{1}{8}$ | 4 | 5 $\frac{1}{4}$ | C. Liddell. |
| 11 | 4 | 4 $\frac{1}{2}$ | J. H. Whitehouse. |
| 11 | 4 | 4 | A. H. Straker. |
| 11 | 3 $\frac{7}{8}$ | 5 | Lieut.-Col. H. C. Morland. |
| 11 | 4 $\frac{1}{8}$ | 3 $\frac{5}{8}$ | Lord Delamere. |
| 11 | 3 $\frac{1}{2}$ | 4 | Capt. A. E. H. Breslin. |
| 11 | 4 | 2 $\frac{3}{4}$ | R. E. Drake-Brockman. |
| 10 $\frac{3}{4}$ | 3 $\frac{1}{4}$ | 3 $\frac{11}{4}$ | Sir Edmund G. Loder, Bart. |
| 10 $\frac{3}{4}$ | 4 $\frac{5}{8}$ | 5 $\frac{1}{4}$ | Capt. B. R. M. Glossop. |
| 10 $\frac{3}{4}$ | 4 | 4 | R. M ^d . Hawker. |
| 10 $\frac{3}{4}$ | 3 $\frac{7}{8}$ | 3 | C. N. Welsh. |
| 10 $\frac{3}{4}$ | 3 $\frac{1}{4}$ | 3 $\frac{11}{4}$ | E. Lort-Phillips. |
| 10 $\frac{3}{4}$ | 4 | 3 $\frac{11}{4}$ | Major B. Vincent. |
| 10 $\frac{1}{4}$ | 4 | 4 $\frac{3}{4}$ | A. Louw. |
| ♀ 9 $\frac{1}{2}$ | 2 $\frac{7}{8}$ | 3 $\frac{1}{4}$ | T. W. H. Clarke. |



Head of Pelzel's Gazelle.

PELZELN'S GAZELLE (*Gazella pelzelni*).

Dhero, Somali.

This species, the lowland gazelle of Somaliland, is nearly related to the last, from which it differs by the absence both of the corrugated elevation on the nose and of the black spot on the muzzle. It is also slightly larger than Speke's gazelle, the height at the shoulder being about 25 inches; and its colour is somewhat more rufous, the light flank-band being distinct, and the dark band rufous brown, only slightly darker than the back, without any tendency to blackness. The dark and light bands on the cheeks are relatively short and indistinct.

Distribution.—The plains of Northern Somaliland, bordering the sea. Within fifty miles of the shore this gazelle is exceedingly numerous, and may often be seen in large herds.

| Length on front curve. | Circum- ference. | Tip to Tip. | Owner. |
|------------------------------|---------------------|-----------------|-----------------------------|
| 14 | 4 $\frac{1}{2}$ | 4 $\frac{1}{8}$ | Sir Edmund G. Loder, Bart. |
| 13 $\frac{1}{2}$ | 3 $\frac{1}{2}$ | 4 $\frac{1}{4}$ | W. Mure. |
| 13 | 4 $\frac{1}{4}$ | 4 $\frac{1}{4}$ | A. de L. Long. |
| 13 | 4 | 6 $\frac{1}{4}$ | H. D. Briggs. |
| 12 $\frac{7}{8}$ | 3 $\frac{1}{2}$ | 5 $\frac{1}{2}$ | Capt. H. M'Lear. |
| 12 $\frac{3}{4}$ | 4 $\frac{1}{4}$ | 4 $\frac{3}{8}$ | R. P. Dennistoun-Webster. |
| 12 $\frac{1}{4}$ | 3 $\frac{1}{2}$ | 4 $\frac{1}{4}$ | Col. H. G. C. Swayne. |
| 12 $\frac{1}{4}$ | 4 $\frac{1}{2}$ | 5 $\frac{1}{2}$ | Lord Delamere. |
| 12 $\frac{1}{4}$ | 4 | 4 $\frac{3}{8}$ | Capt. K. L. W. Mackenzie. |
| 12 | 3 $\frac{1}{4}$ | 5 $\frac{1}{4}$ | Capt. F. W. Richey. |
| 12 | 3 $\frac{3}{4}$ | 4 $\frac{1}{2}$ | Capt. A. G. Stevenson. |
| 12 | 3 $\frac{3}{4}$ | 5 $\frac{1}{4}$ | Viscount Edmond de Poncins. |
| 12 | 3 $\frac{1}{2}$ | 5 $\frac{1}{4}$ | Capt. C. R. Kelly. |
| 11 $\frac{7}{8}$ | 4 | 5 | C. C. Cumming. |
| 11 $\frac{3}{4}$ | 4 $\frac{1}{8}$ | 4 | R. E. Drake-Brockman. |
| 11 $\frac{5}{8}$ | 4 | 3 $\frac{1}{2}$ | Capt. H. du B. O'Neill. |
| 11 $\frac{1}{2}$ | 3 $\frac{1}{2}$ | 5 $\frac{1}{2}$ | T. W. H. Clarke. |
| 11 $\frac{1}{2}$ | 3 $\frac{1}{2}$ | 4 $\frac{1}{4}$ | Lieut.-Col. H. C. Morland. |
| 11 $\frac{1}{2}$ | 3 $\frac{1}{2}$ | 5 | Capt. W. H. Williamson. |
| 11 $\frac{1}{2}$ | 3 $\frac{1}{4}$ | 4 $\frac{1}{4}$ | C. S. Mann. |
| 11 $\frac{1}{2}$ | 3 $\frac{3}{4}$ | 4 $\frac{3}{8}$ | W. F. Whitehouse. |
| 11 $\frac{1}{2}$ | 3 $\frac{1}{2}$ | 4 $\frac{1}{2}$ | Capt. G. W. Denison. |
| 11 $\frac{1}{2}$ | 3 $\frac{3}{4}$ | 4 $\frac{1}{4}$ | Capt. F. R. Tarleton. |
| 9 9 | ... | ... | C. S. Mann. |
| 9 8 $\frac{1}{2}$ | 2 $\frac{1}{2}$ | 3 $\frac{1}{2}$ | W. F. Whitehouse. |



Horns of Loder's Gazelle.

LODER'S GAZELLE (*Gazella leptoceros*).

Rhim, Arabic.

Although originally described so long ago as the year 1842, very little was known of this gazelle till specimens were procured by Sir E. G. Loder, and described as a new species under the name of *G. loderi*. Further investigation proved them to be inseparable from the species named by F. Cuvier. This species is easily recognisable by the long and slender form of the nearly straight horns of the bucks, and the very pale tone of colouring of the upper-parts, which may be described as pale sandy fawn, with the characteristic gazelle-markings only indistinctly defined. On the face the dark streaks are sandy instead of rufous, and the light bands on the flanks are almost imperceptible, while the dark ones below them are pale sandy with the very slightest tinge of brown; the tail being sandy at the base, and gradually darkening to brownish black towards the tip. In the male the horns are about twice the length of the head, very slender, and closely and heavily ridged almost to the tips. Height at shoulder about 28 inches. Weight, 34 lbs.

Distribution.—The sandy tracts of the interior of Algeria, Tunisia, and Western Egypt, thence extending southwards into Nubia and Sennar.

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|-----------------|------------------|------------------------|-------------------------------|
| 15 $\frac{7}{8}$ | 3 $\frac{1}{2}$ | 6 $\frac{1}{4}$ | South of Biskra . . . | Dr. Dawtrey Drewitt. |
| 15 $\frac{7}{8}$ | 3 $\frac{3}{4}$ | 7 $\frac{1}{2}$ | Southern Tunisia . . . | Sir Edmund G. Loder, Bart. |
| 15 $\frac{3}{4}$ | 4 | 4 $\frac{1}{4}$ | Do. | J. I. S. Whitaker. |
| 14 $\frac{1}{2}$ | 3 $\frac{1}{2}$ | 5 $\frac{1}{2}$ | South of Biskra . . . | American National Collection. |
| 14 $\frac{7}{16}$ | 3 $\frac{7}{8}$ | 4 $\frac{3}{4}$ | Algeria | Abe Bailey. |
| 14 $\frac{3}{8}$ | 3 $\frac{1}{2}$ | 8 | ? | C. S. Mann. |
| 14 $\frac{1}{4}$ | 3 $\frac{3}{4}$ | 6 $\frac{1}{2}$ | Algeria | H. H. Prince Omar Toussoun. |
| 14 $\frac{1}{4}$ | 3 $\frac{1}{2}$ | 10 $\frac{1}{4}$ | Do. | Sir Edmund G. Loder, Bart. |
| 14 | 3 $\frac{7}{8}$ | 3 | Do. | Hon. R. A. Ward. |
| 13 $\frac{5}{8}$ | 3 $\frac{5}{8}$ | 5 $\frac{1}{2}$ | Do. | W. E. Pease. |
| 13 $\frac{1}{2}$ | 3 $\frac{3}{4}$ | 8 $\frac{3}{4}$ | Southern Tunisia . . . | Sir Edmund G. Loder, Bart. |
| 13 $\frac{1}{2}$ | 3 $\frac{1}{2}$ | 10 | Algeria | British Museum. |
| 13 $\frac{1}{4}$ | 3 $\frac{1}{2}$ | 3 $\frac{3}{4}$ | ? | A. Louw. |
| 13 $\frac{1}{4}$ | 3 $\frac{1}{2}$ | 5 $\frac{3}{4}$ | Southern Tunisia . . . | J. I. S. Whitaker. |
| 13 $\frac{1}{4}$ | 4 $\frac{1}{4}$ | 5 $\frac{1}{8}$ | Fayum, Egypt | Capt. S. S. Flower. |
| ♀ 11 $\frac{3}{4}$ | 2 | 3 $\frac{3}{8}$ | Southern Tunisia . . . | Abe Bailey. |

The ISABELLE GAZELLE (*Gazella isabella*).*Gannai* of the natives.

In all the foregoing gazelles with horns in both sexes the horns themselves have their tips slightly curved either inwards or upwards, and never bent back so as to form a right angle with the basal portion. On the other hand, the present species and the Muscat gazelle (*G. muscatensis*), while resembling the former in the shape of the white rump-patch and the comparatively light tint of the flank-band, differ by the tips of the horns being strongly hooked inwards so as to form nearly or completely a right angle. From its ally the present species differs by the pale fawn-colour of the upper-parts; the lateral bands and other markings being also fawn, instead of brownish. Height at shoulder about 25 inches.

Distribution.—The Red Sea littoral from Suakin to Massowa, and the interior to Bogosland, Barla, and Taka.

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|-----------------|-----------------|--------------------|----------------------------------|
| 11 $\frac{1}{8}$ | 4 | 3 | Red Sea Province . | H. G. Watson. |
| 10 $\frac{3}{4}$ | 3 $\frac{5}{8}$ | 4 | Kordofan . . | Sir Robert Harvey, Bart. |
| 10 $\frac{3}{4}$ | 3 $\frac{7}{8}$ | 4 $\frac{5}{8}$ | Sudan . . . | Major C. Levita. |
| 10 $\frac{3}{4}$ | 4 $\frac{1}{4}$ | 3 $\frac{7}{8}$ | El Obeid . . | Capt. J. G. A. Massy. |
| 10 $\frac{1}{2}$ | 3 $\frac{3}{4}$ | 4 | White Nile . . | Hon. F. E. Guest. |
| 10 $\frac{1}{2}$ | 4 | 2 $\frac{1}{2}$ | Suakin . . . | C. S. Mann. |
| 10 $\frac{1}{2}$ | 4 $\frac{1}{4}$ | 2 | Do. . . . | Princess E. Demidoff. |
| 10 $\frac{1}{2}$ | 4 $\frac{5}{8}$ | 3 $\frac{1}{2}$ | Do. . . . | H. S. Smiley. |
| 10 $\frac{1}{2}$ | 3 $\frac{3}{4}$ | 2 $\frac{5}{8}$ | Do. . . . | Prince E. Demidoff. |
| 10 $\frac{1}{2}$ | 3 $\frac{1}{4}$ | 2 | Do. . . . | Lord Villiers. |
| 10 $\frac{1}{2}$ | 3 $\frac{7}{8}$ | 6 $\frac{1}{4}$ | Sudan . . . | Capt. P. C. Lord. |
| 10 $\frac{3}{8}$ | 3 $\frac{3}{8}$ | 3 | Kordofan . . | Capt. P. E. Vaughan. |
| 10 $\frac{1}{4}$ | 3 $\frac{3}{4}$ | 1 | Do. . . . | Walter Jones. |
| 10 $\frac{1}{4}$ | 3 $\frac{3}{4}$ | 4 | Suakin . . . | C. E. Russell. |
| 10 $\frac{1}{8}$ | 3 $\frac{3}{8}$ | 4 | Komayli, Abyssinia | British Museum (W. T. Blanford). |
| 10 $\frac{1}{8}$ | 3 $\frac{3}{8}$ | 2 $\frac{1}{2}$ | Sudan . . . | Major H. H. S. Morant. |
| ♀ 7 | 1 $\frac{7}{8}$ | 2 $\frac{3}{8}$ | Kordofan . . | British Museum. |



Head of Heuglin's Gazelle.

HEUGLIN'S GAZELLE (*Gazella tilonura*).*Tel-Badu, Tigri.*

This well-marked species represents a small sub-group in which the dark band on the flanks is very strongly defined, and black in colour; the present species being distinguished from its allies by the abrupt inward hooking of the tips of the horns. The general colour is deep sandy, with the central face-band but little darker than the back, no black nose-spot, and the tail sandy at the base but black elsewhere. Height at shoulder about 27 inches.

Distribution.—Bogosland, Abyssinia, Sennar, and Northern Bahr-el-Ghazal.

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|-----------------|-----------------|----------------|-----------------------------|
| 11 $\frac{3}{4}$ | 5 | 2 | Sudan . . . | Major F. J. L. Howard. |
| 11 $\frac{5}{8}$ | 4 | 7 | Do. . . . | H. Leney. |
| 11 | 4 | 3 $\frac{1}{2}$ | Do. . . . | Lord Villiers. |
| 10 $\frac{7}{8}$ | 4 $\frac{1}{2}$ | 2 $\frac{1}{2}$ | Do. . . . | H. Boughton Leigh. |
| 10 $\frac{3}{4}$ | 3 $\frac{3}{4}$ | 4 $\frac{1}{2}$ | ? | E. Lort-Phillips. |
| 10 $\frac{3}{4}$ | 4 | 2 $\frac{1}{8}$ | Bogosland . . | British Museum. |
| 10 $\frac{1}{2}$ | 4 $\frac{3}{8}$ | 3 | Near Kassala . | Prince Colloredo Mannsfeld. |
| 10 $\frac{1}{4}$ | 4 $\frac{1}{2}$ | 3 $\frac{1}{2}$ | Sudan . . . | C. E. Russell. |
| 10 $\frac{1}{4}$ | 4 $\frac{1}{8}$ | 4 $\frac{1}{4}$ | Basaland . . | Hon. Walter Rothschild. |
| 10 $\frac{1}{4}$ | 4 $\frac{1}{8}$ | 2 $\frac{7}{8}$ | ? | Col. Ralph Vivian. |
| 10 | 4 $\frac{3}{8}$ | 2 $\frac{1}{2}$ | Setit Valley . | Earl of Sefton. |
| 9 7 | 2 $\frac{1}{2}$ | 3 $\frac{7}{8}$ | Do. . . . | Do. |



Skull and Horns of Red-fronted Gazelle.

The KORIN or RED-FRONTED GAZELLE (*Gazella rufifrons*).

Seni, Gambian.

El Hamra, Dinka.

This medium-sized and rather stoutly built species agrees with Heuglin's gazelle in the narrow dark brown flank-band, but differs by the absence of a distinct inward hooking of the tips of the horns. The general colour of the upper-parts is deep sandy rufous, brightening into rich rufous on the forehead and face, where there is no nose-spot. Knee-tufts, so generally present in gazelles, are wanting, and the tail, with the exception of the sandy upper surface of the basal portion, is black. Horns relatively small, regularly divergent, curving at first slightly backwards and then forwards, heavily ridged till the terminal two or three inches.

Distribution.—Senegal, Gambia, Northern Nigeria, Kordofan, and White Nile, to Northern Uganda. The typical race is from Gambia and Nigeria; the eastern race is distinguished as *G. r. salmi*, and the one from the Mongala district of the White Nile as *G. r. albonotata*.

A.—TYPICAL RACE (*G. rufifrons typica*).

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|-----------------|-----------------|------------------|--------------------------------|
| 11 $\frac{1}{2}$ | 4 $\frac{5}{8}$ | 4 $\frac{3}{4}$ | Northern Nigeria | C. Francis. |
| 11 $\frac{1}{2}$ | 4 $\frac{1}{4}$ | 4 $\frac{3}{4}$ | Do. | Capt. G. C. Kelly. |
| 11 $\frac{1}{4}$ | 4 $\frac{1}{2}$ | 5 $\frac{1}{2}$ | Do. | Capt. L. C. Brodie. |
| 11 | 4 $\frac{1}{2}$ | 3 $\frac{1}{4}$ | Do. | C. S. Burnett. |
| 11 | 4 $\frac{1}{2}$ | 3 $\frac{1}{2}$ | Do. | Major D. F. MacCarthy Morrogh. |
| ♀ 9 $\frac{1}{2}$ | 2 $\frac{1}{2}$ | 4 $\frac{1}{2}$ | Do. | Capt. L. C. Brodie. |

B.—EASTERN RACE (*G. rufifrons salmi*).

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|------------------|-----------------|---------------|------------------------------------|
| 13 $\frac{7}{8}$ | 5 $\frac{1}{4}$ | 7 $\frac{1}{2}$ | White Nile | Lieut.-Col. J. W. Yardley. |
| 13 $\frac{1}{4}$ | 4 $\frac{3}{4}$ | 6 $\frac{3}{4}$ | Kordofan | B. Chew. |
| 13 | 5 $\frac{1}{2}$ | 8 | White Nile | F. W. Greswolde-Williams. |
| 13 | 4 $\frac{1}{2}$ | ... | Do. | Capt. A. H. Vivian. |
| 12 $\frac{3}{4}$ | 4 $\frac{1}{2}$ | 7 $\frac{3}{4}$ | Kordofan | Capt. C. E. Hills. |
| 12 $\frac{3}{4}$ | 4 $\frac{7}{8}$ | 7 | White Nile | Capt. B. W. Y. Danford. |
| 12 $\frac{5}{8}$ | 4 $\frac{7}{8}$ | 7 | Do. | R. M'D. Hawker. |
| 12 $\frac{5}{8}$ | 4 $\frac{5}{8}$ | 6 $\frac{5}{8}$ | Do. | H. Cookson. |
| 12 $\frac{1}{2}$ | 5 | 5 | Do. | Capt. E. Berry. |
| 12 $\frac{1}{2}$ | 4 $\frac{3}{4}$ | 6 $\frac{1}{4}$ | Do. | Capt. J. C. Graham. |
| 12 $\frac{1}{2}$ | 5 | 5 $\frac{1}{2}$ | Kordofan | Sir Robert Harvey, Bart. |
| 12 $\frac{3}{8}$ | 5 | 4 $\frac{1}{4}$ | White Nile | C. Cookson. |
| 12 $\frac{3}{8}$ | 5 | 5 $\frac{1}{4}$ | Do. | R. N. Willan. |
| 12 $\frac{1}{4}$ | 4 $\frac{9}{16}$ | 5 $\frac{3}{8}$ | Do. | Maj.-Gen. B. T. Mahon. |
| 12 $\frac{1}{4}$ | 4 $\frac{1}{2}$ | 5 $\frac{3}{4}$ | Do. | C. Bower Ismay. |
| 12 $\frac{1}{8}$ | 4 $\frac{3}{4}$ | 5 $\frac{3}{4}$ | Do. | Col. H. W. Guinness. |
| 12 | 4 $\frac{3}{4}$ | 6 | Do. | Norman B. Smith. |
| 12 | 4 $\frac{5}{8}$ | 5 $\frac{5}{8}$ | Do. | Major J. F. Wolseley. |
| 12 | 4 $\frac{1}{4}$ | 6 | Do. | Lieut. W. B. Drury, R.N. |
| 12 | 4 $\frac{1}{4}$ | 5 $\frac{1}{4}$ | Do. | T. D. M. Cardeza. |
| 12 | 4 $\frac{1}{4}$ | 4 $\frac{1}{4}$ | Kordofan | Major C. J. Hawker. |
| 12 | 5 | 6 | Sudan | A. L. Butler. |
| 11 $\frac{7}{8}$ | 4 $\frac{1}{4}$ | 5 | Kordofan | F. P. Nathan. |
| 11 $\frac{7}{8}$ | 5 | 4 $\frac{1}{4}$ | Reahat, Sudan | Prince Colloredo Mansfeld. |
| 11 $\frac{7}{8}$ | 4 $\frac{1}{2}$ | 5 | Kordofan | Capt. F. L. Livingstone-Learmonth. |
| 11 $\frac{7}{8}$ | 4 $\frac{1}{4}$ | 6 $\frac{1}{4}$ | El Obeid | Capt. J. G. A. Massy. |
| 11 $\frac{1}{4}$ | 4 $\frac{1}{2}$ | 4 $\frac{1}{4}$ | Do. | H. F. Buxton. |
| 11 $\frac{1}{4}$ | 4 $\frac{3}{4}$ | 5 | Do. | H. Latham. |
| 11 $\frac{1}{4}$ | 5 | 5 $\frac{1}{4}$ | Do. | W. D. James. |
| 11 $\frac{1}{4}$ | 4 $\frac{3}{4}$ | 3 $\frac{3}{4}$ | Do. | Capt. C. S. Timins. |
| 11 $\frac{1}{4}$ | 4 $\frac{3}{4}$ | 5 $\frac{3}{4}$ | White Nile | J. S. Egerton. |
| 11 $\frac{1}{4}$ | 4 $\frac{1}{4}$ | 5 $\frac{1}{4}$ | Do. | E. D. H. Tollemache. |
| ♀ 10 $\frac{1}{2}$ | 2 $\frac{3}{4}$ | 2 $\frac{3}{4}$ | Kordofan | G. L. Harrison. |



Head of Mongala Red-fronted Gazelle.
From the Type specimen.

C.—MONGALA RACE (*G. rufifrons albonotata*).

Distribution.—According to the late Capt. H. S. Logan, from Gondokoro, in Uganda, to Bor, in the Mongala district of the Sudan, on the Abyssinian side of the Bahr-el-Gebel.

| Length on front. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------|----------------|----------------|---------------|---|
| $12\frac{3}{4}$ | $4\frac{1}{4}$ | $6\frac{1}{4}$ | Mongala . . . | Capt. P. E. Vaughan. |
| $12\frac{5}{8}$ | $4\frac{3}{4}$ | 4 | Do. . . . | P. Niedeck. |
| $12\frac{1}{8}$ | $4\frac{3}{8}$ | $6\frac{1}{4}$ | Do. . . . | Capt. A. W. Jennings Bramly. |
| 12 | $4\frac{3}{4}$ | 5 | Do. . . . | Capt. E. E. B. Mackintosh. |
| $11\frac{3}{4}$ | $4\frac{1}{4}$ | 5 | Do. . . . | Capt. B. W. Y. Danford. |
| $11\frac{1}{4}$ | $4\frac{1}{4}$ | $3\frac{3}{4}$ | Do. . . . | Capt. P. M. Dove. |
| 11 | $4\frac{1}{4}$ | $4\frac{1}{4}$ | Do. . . . | Capt. P. A. Wilson. |
| $10\frac{7}{8}$ | $4\frac{1}{2}$ | $3\frac{3}{8}$ | Do. . . . | J. V. Colby. |
| 10 | $4\frac{5}{8}$ | $5\frac{7}{8}$ | Do. . . . | Hon. Walter Rothschild. (Type specimen.) |
| ♀ $4\frac{3}{8}$ | $1\frac{1}{8}$ | $1\frac{1}{2}$ | Do. . . . | C. Logan. |



Heads of Thomson's Gazelle.

THOMSON'S GAZELLE (*Gazella thomsoni*).*Swalla*, Swahili. *Engoli*, Masai.

The distinct black nose-spot and the great depth of the black flank-band serve to distinguish this handsome species from the typical *G. rufifrons*, with which it agrees in the general form of the horns. The prevailing colour of the upper-parts is deep sandy rufous, with all the markings well developed and sharply defined; the central face-streak being a deeper rufous, and the light flank-band present, although only slightly paler than the back. There is also a narrow black band bordering the white on the sides of the rump; and knee-tufts are developed. The horns are long, and rather like those of the Indian gazelle on an enlarged scale. Height at shoulder of males from about 25 to 27 inches; of females, about $23\frac{1}{2}$ inches. Weight of bucks from 52 to 62 lbs.; of does, about 32 lbs.

Distribution.—The interior districts of British and German East Africa, from Lake Rudolf southwards to Irangi.

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|----------------|----------------|-------------|-------------------|
| $16\frac{1}{2}$ | 5 | $4\frac{1}{4}$ | East Africa | H. Fowler. |
| $16\frac{1}{4}$ | $4\frac{1}{2}$ | 5 | Do. | Earl of Kingston. |
| 16 | $4\frac{5}{8}$ | $4\frac{1}{2}$ | Do. | W. A. Baird. |

| Length on front curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|---------------------------|---------------------|------------------|-------------|--|
| -16 | 4 $\frac{1}{2}$ | 2 | East Africa | C. S. Mann. |
| 15 $\frac{3}{4}$ | 4 $\frac{1}{2}$ | 7 | Do. | Sir Richard Dane. |
| 15 $\frac{5}{8}$ | 4 $\frac{1}{2}$ | 5 $\frac{1}{2}$ | Do. | Major H. B. Dalgety. |
| 15 $\frac{5}{8}$ | 4 $\frac{5}{8}$ | 3 $\frac{5}{8}$ | Do. | C. J. Murray. |
| 15 $\frac{1}{2}$ | 4 $\frac{1}{2}$ | 6 $\frac{1}{2}$ | Do. | E. M. Crosfield. |
| 15 $\frac{1}{2}$ | 5 | 3 $\frac{7}{8}$ | Do. | F. W. Belt. |
| 15 $\frac{1}{2}$ | 4 $\frac{3}{4}$ | 3 $\frac{3}{4}$ | Do. | F. J. Jackson. |
| 15 $\frac{1}{2}$ | 4 $\frac{1}{2}$ | 3 | Do. | Capt. M. L. Pears. |
| 15 $\frac{1}{2}$ | 4 $\frac{1}{4}$ | 5 $\frac{3}{4}$ | Do. | G. Henry. |
| 15 $\frac{3}{8}$ | 4 $\frac{1}{4}$ | 5 | Do. | Stephenson R. Clarke. |
| 15 $\frac{3}{8}$ | 4 $\frac{1}{8}$ | 3 | Do. | The Master of Belhaven. |
| 15 $\frac{1}{4}$ | 4 $\frac{3}{4}$ | 5 $\frac{1}{4}$ | Do. | N. C. Cockburn. |
| 15 $\frac{1}{4}$ | 4 $\frac{3}{4}$ | 4 $\frac{3}{8}$ | Do. | British Museum (F. J. Jackson). |
| 15 $\frac{1}{4}$ | 4 $\frac{1}{2}$ | 4 $\frac{1}{8}$ | Do. | Major A. E. Smith. |
| 15 $\frac{1}{4}$ | 4 $\frac{3}{4}$ | 5 | Do. | Guy Fenwick. |
| 15 $\frac{1}{4}$ | 5 | 4 $\frac{7}{8}$ | Do. | C. B. C. Storey. |
| 15 $\frac{1}{4}$ | 4 $\frac{1}{2}$ | 11 $\frac{3}{4}$ | Do. | F. C. Cobb. |
| 15 $\frac{3}{8}$ | 4 $\frac{7}{8}$ | 5 $\frac{7}{8}$ | Do. | Lord Basil Blackwood. |
| 15 $\frac{1}{8}$ | 5 $\frac{1}{8}$ | 5 | Do. | J. N. Dracopoli. |
| 15 | 4 $\frac{3}{4}$ | 4 | Do. | H. B. Tate. |
| 15 | 4 $\frac{1}{2}$ | 5 $\frac{1}{4}$ | Do. | Major C. U. Price. |
| 15 | 4 $\frac{1}{4}$ | 5 $\frac{3}{4}$ | Do. | B. Dominick. |
| 15 | 5 | 3 $\frac{5}{8}$ | Do. | G. G. Longden. |
| 14 $\frac{7}{8}$ | 4 $\frac{1}{2}$ | 3 $\frac{1}{2}$ | Do. | Major L. Boyd-Moss. |
| 14 $\frac{5}{8}$ | 5 | 4 | Do. | Hon. Guy Wilson. |
| 14 $\frac{5}{8}$ | 4 $\frac{1}{2}$ | 3 $\frac{5}{8}$ | Do. | R. J. Church. |
| 14 $\frac{7}{8}$ | 4 $\frac{1}{2}$ | 4 $\frac{1}{2}$ | Do. | Col. Trevor Ternan. |
| 14 $\frac{7}{8}$ | 4 $\frac{3}{4}$ | 4 $\frac{3}{4}$ | Do. | Col. D. M. Lumsden. |
| 14 $\frac{3}{4}$ | 4 $\frac{3}{4}$ | 4 $\frac{1}{2}$ | Do. | Lord Delamere. |
| 14 $\frac{3}{4}$ | 5 | 4 | Do. | Douglas M'Douall. |
| 14 $\frac{3}{4}$ | 4 $\frac{1}{2}$ | 6 $\frac{1}{4}$ | Do. | W. F. Wailes-Fairbairn. |
| 14 $\frac{3}{4}$ | 4 $\frac{1}{2}$ | 3 $\frac{1}{2}$ | Do. | Capt. R. Meinertzhagen. |
| 14 $\frac{3}{4}$ | 4 $\frac{3}{4}$ | 3 | Do. | G. L. Harrison. |
| 14 $\frac{3}{4}$ | 4 | 5 $\frac{1}{4}$ | Do. | C. C. Branch. |
| 14 $\frac{3}{4}$ | 4 $\frac{3}{4}$ | 4 $\frac{3}{4}$ | Do. | Capt. the Hon. G. H. Douglas Pennant. |
| 14 $\frac{3}{4}$ | 4 $\frac{1}{2}$ | 4 $\frac{1}{4}$ | Do. | J. E. R. Oldfield. |
| 14 $\frac{3}{4}$ | 4 $\frac{3}{4}$ | 6 | Do. | Gerrit Forbes. |
| 14 $\frac{3}{4}$ | 4 $\frac{3}{4}$ | 4 $\frac{1}{2}$ | Do. | R. B. Muir. |
| 14 $\frac{3}{4}$ | 4 $\frac{3}{4}$ | 5 $\frac{1}{4}$ | Do. | Mrs. A. K. Muir. |
| 14 $\frac{3}{4}$ | 5 $\frac{1}{4}$ | 5 | Do. | Major G. E. Tuson. |
| 14 $\frac{3}{4}$ | 4 $\frac{3}{8}$ | 5 $\frac{1}{4}$ | Do. | R. Holmes. |
| 14 $\frac{3}{4}$ | 4 $\frac{1}{2}$ | 4 $\frac{1}{4}$ | Do. | F. C. Selous. |
| - ♀ 6 $\frac{1}{2}$ | 2 | 2 $\frac{1}{2}$ | Do. | C. Steuart Betton. |

- Owner's measurements.



Skull and Horns of Grant's Gazelle.

GRANT'S GAZELLE (*Gazella granti*).*Suara*, Swahili.*Ngoli*, Nodorobo.

This handsome species is the first of a group of gazelles of large size, and characterised by the fawn-colour of the back being encroached upon to a greater or less degree by the white of the rump. In this species the horns are very long and typically lyrate; there is a dark streak on the front border of each side of the rump-patch; the middle face-streak is chestnut, with a black nose-spot; and the tail, with the exception of the black crest, is either wholly white, or sandy above and white beneath. On the neck and back the hair has a peculiar wavy appearance, recalling that of watered silk. Height at shoulder from about 32 to 34 inches; weight of male from about 150 to 165 lbs., when cleaned about 115 lbs.

Distribution.—East Africa; throughout Masailand, Kilimanjaro, north of Baringo, Mount Elgon, and the Suk country; generally on open grass-lands. In *G. granti typica* of the interior of East Africa, the flank-bands are faint in the adult, and the fawn area does not intrude to any extent on the white of the rump-patch. In the Usukuma race, *G. g. robertsi*, the horns show a peculiar outward twist, so that their points are far apart. In the Tana *G. g. petersi* the stature is smaller, the horns are nearly straight, and the fawn

of the back extends along the middle of the upper surface of the tail. In the Lowghi *G. g. notata* the flank-bands are very distinct with a dark one above and below the light one, and the horns are nearly straight. The Lado *G. g. brighti* is a small race, without dark flank-bands, and a narrow black border to the rump-patch. The Abaya *G. g. lacuum*, which is also rather small, has a dark flank-band in the young, and horns of the *petersi* type.

A.—Many of the following belong to the **TYPICAL RACE.**

| Length on front curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|------------------------------|---------------------|------------------|-------------------|-----------------------------|
| 30 $\frac{1}{4}$ | 7 $\frac{3}{4}$ | 20 | Kilimanjaro . . . | Capt. F. A. Dickinson. |
| 29 | 7 | 14 | East Africa . . . | R. O. Preston. |
| 29 | 6 $\frac{1}{2}$ | 20 $\frac{3}{4}$ | Do. | Sheffield Neave. |
| 28 $\frac{7}{8}$ | 6 $\frac{5}{8}$ | 13 $\frac{3}{4}$ | Do. | A. Fowler. |
| 28 $\frac{3}{4}$ | 6 $\frac{3}{4}$ | 17 $\frac{5}{8}$ | Do. | Capt. F. W. Barrett. |
| 28 $\frac{1}{2}$ | 7 | 15 $\frac{3}{4}$ | Do. | C. S. Mann. |
| 28 $\frac{1}{4}$ | 6 $\frac{5}{8}$ | 15 $\frac{1}{2}$ | Do. | F. J. Jackson. |
| 28 | 7 | 21 | Do. | K. V. Painter. |
| 28 | 7 $\frac{1}{2}$ | 16 | Do. | Douglas M'Douall. |
| 28 | 6 $\frac{3}{4}$ | 24 $\frac{3}{4}$ | Do. | Capt. N. E. Playfair. |
| 27 $\frac{7}{8}$ | 6 $\frac{3}{8}$ | 18 $\frac{3}{4}$ | Do. | H. C. V. Hunter. |
| 27 $\frac{3}{4}$ | 6 $\frac{3}{4}$ | 14 | Do. | J. Jay White. |
| 27 $\frac{3}{4}$ | 6 $\frac{1}{4}$ | 11 | Do. | C. C. Wilson. |
| 27 $\frac{1}{4}$ | 7 | 18 | Do. | Major G. E. Tuson. |
| 27 $\frac{3}{4}$ | 7 $\frac{1}{4}$ | 16 $\frac{3}{8}$ | Do. | W. H. Levy. |
| 27 $\frac{1}{2}$ | 6 $\frac{1}{2}$ | 16 | Do. | F. J. Jackson. |
| 27 $\frac{1}{2}$ | 6 $\frac{1}{2}$ | 6 $\frac{1}{2}$ | Do. | Capt. A. Neave. |
| 27 $\frac{1}{2}$ | 7 | 17 | Do. | Capt. D. H. Macdonell. |
| 27 $\frac{1}{2}$ | 7 $\frac{1}{4}$ | 13 | Do. | Major G. S. M'Loughlin. |
| 27 $\frac{3}{8}$ | 6 $\frac{3}{8}$ | 20 $\frac{5}{8}$ | Do. | H. Fowler. |
| 27 $\frac{1}{4}$ | 6 $\frac{3}{4}$ | 8 $\frac{1}{4}$ | Do. | R. B. Seager. |
| 27 $\frac{1}{4}$ | 6 $\frac{1}{2}$ | 18 $\frac{7}{8}$ | Do. | Sir Robert Harvey, Bart. |
| 27 $\frac{1}{4}$ | 7 | 19 | Do. | Marquis of Waterford. |
| 27 $\frac{1}{4}$ | 7 | 16 $\frac{1}{4}$ | Do. | E. H. Lichfield. |
| 27 | 7 | 15 $\frac{1}{4}$ | Do. | A. J. A. Douglas. |
| 27 | 7 | 12 $\frac{1}{2}$ | Do. | H. T. Barclay. |
| 27 | 7 | 20 | Do. | Capt. Lord J. S. Cavendish. |
| 27 | 6 $\frac{3}{4}$ | 14 $\frac{1}{4}$ | Do. | Dr. A. E. Herz. |
| 27 | 7 $\frac{1}{2}$ | 14 $\frac{3}{4}$ | Do. | L. M. Douglas. |

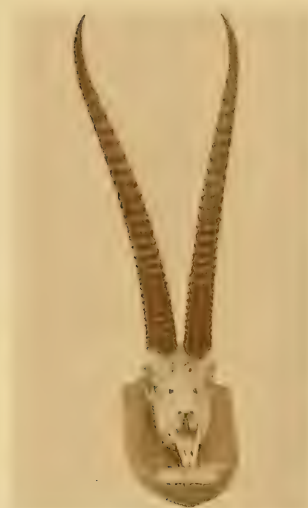
— Owner's measurements.

| Length on front curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|------------------------------|---------------------|------------------|-------------------|---------------------------|
| 27 | 7 | 16 $\frac{3}{4}$ | East Africa . . . | Hugh G. Barclay. |
| 27 | 6 $\frac{1}{2}$ | 22 $\frac{1}{2}$ | Do. . . . | G. Williams. |
| 27 | 6 $\frac{1}{2}$ | 11 $\frac{3}{4}$ | Do. . . . | C. W. Fuller. |
| 26 $\frac{3}{4}$ | 7 $\frac{1}{8}$ | ... | Do. . . . | F. C. Selous. |
| 26 $\frac{3}{4}$ | 7 $\frac{1}{4}$ | 14 $\frac{1}{4}$ | Do. . . . | Capt. V. C. de Crespigny. |
| 26 $\frac{3}{4}$ | 7 | 14 $\frac{1}{2}$ | Do. . . . | A. Bayley-Worthington. |
| 26 $\frac{1}{2}$ | 6 $\frac{1}{4}$ | 18 $\frac{1}{2}$ | Do. . . . | Dr. Clifford Brookes. |
| 26 $\frac{1}{2}$ | 7 | 10 $\frac{3}{4}$ | Do. . . . | Col. Gordon Wilson. |
| 26 $\frac{1}{2}$ | 6 $\frac{3}{4}$ | 18 | Do. . . . | R. J. Cuninghame. |
| 26 $\frac{1}{2}$ | 7 $\frac{1}{4}$ | 18 | Do. . . . | Major A. E. Smith. |
| 26 $\frac{1}{2}$ | 6 $\frac{3}{4}$ | 11 $\frac{1}{4}$ | Do. . . . | Hon. Mrs. Blyth. |
| 26 $\frac{1}{2}$ | 7 $\frac{1}{4}$ | 15 $\frac{1}{4}$ | Do. . . . | Capt. R. Meinertzhagen. |
| - ♀ 26 $\frac{1}{2}$ | 5 $\frac{1}{2}$ | 19 $\frac{1}{4}$ | Do. . . . | Nairobi Club. |

B.—USUKUMA RACE (*G. granti robertsi*).

| Length on front curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|------------------------------|---------------------|------------------|----------------------|---|
| 28 $\frac{1}{8}$ | 5 $\frac{1}{2}$ | 38 $\frac{1}{2}$ | Sotik | R. J. Cuninghame. |
| 28 | ... | 28 $\frac{1}{2}$ | Kedong Valley . . | Capt. R. S. Hart. |
| 27 $\frac{1}{2}$ | 6 $\frac{1}{2}$ | 22 | Lemek Valley . . | Capt. the Hon. O. H. Stanley. |
| 26 $\frac{3}{4}$ | 6 $\frac{1}{2}$ | 20 $\frac{1}{4}$ | East Africa . . . | Mrs. A. K. Muir. |
| 26 $\frac{3}{4}$ | 6 $\frac{1}{4}$ | 20 | Do. . . . | C. Bower Ismay. |
| 26 $\frac{1}{4}$ | 5 $\frac{3}{4}$ | 23 $\frac{5}{8}$ | Do. . . . | A. Fowler. |
| 26 $\frac{1}{4}$ | 6 $\frac{1}{2}$ | 25 $\frac{1}{4}$ | Do. . . . | H. Sampson. |
| 26 $\frac{1}{4}$ | 6 $\frac{1}{8}$ | 25 $\frac{3}{8}$ | Do. . . . | H. Fowler. |
| 26 $\frac{1}{4}$ | 6 $\frac{3}{4}$ | 19 $\frac{1}{4}$ | Do. . . . | H. R. M'Clure. |
| 26 $\frac{1}{4}$ | 6 | 26 $\frac{1}{2}$ | Do. . . . | R. B. Muir. |
| 25 $\frac{1}{2}$ | 6 | 18 $\frac{1}{2}$ | Do. . . . | Capt. H. C. S. Ashton. |
| 25 $\frac{3}{4}$ | 5 $\frac{7}{8}$ | 25 $\frac{3}{4}$ | Do. . . . | Capt. H. C. Hart. |
| - 24 $\frac{1}{2}$ | ... | 28 | German East Africa . | British Museum (F. Russell Roberts and G. Blaine). |

- Owner's measurements.



Skull and Horns of the Tana Grant's Gazelle.
Sir Edmund G. Loder's specimen.

C.—TANA RACE (*G. granti petersi*).

Distribution.—Coast districts of East Africa.

| Length on front curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|---------------------------|---------------------|-----------------|-------------------|---------------------------------|
| 23 $\frac{3}{4}$ | 6 $\frac{1}{2}$ | 11 | E. Africa . . . | Capt. R. Meinertzhagen. |
| 22 $\frac{3}{4}$ | 6 $\frac{1}{2}$ | 7 $\frac{1}{4}$ | Machakos . . . | Abe Bailey. |
| 22 $\frac{1}{2}$ | 6 $\frac{3}{8}$ | 8 | Voi . . . | Sir Edmund G. Loder, Bart. |
| 22 $\frac{1}{8}$ | 6 $\frac{3}{8}$ | 5 $\frac{7}{8}$ | Shererini . . . | British Museum (F. J. Jackson). |
| 21 $\frac{3}{4}$ | 6 $\frac{1}{2}$ | 11 | ? | Major L. Boyd-Moss. |
| 21 $\frac{1}{2}$ | 6 $\frac{7}{8}$ | 8 $\frac{1}{4}$ | ? | T. F. V. Buxton. |
| 21 | 6 $\frac{3}{4}$ | 10 | Machakos . . . | Hon. Walter Rothschild. |
| 20 $\frac{1}{2}$ | 5 $\frac{1}{4}$ | 9 $\frac{1}{2}$ | Tana Valley . . . | Capt. C. Hankey. |
| 20 $\frac{1}{2}$ | 5 $\frac{3}{4}$ | 5 $\frac{5}{8}$ | Do. . . | Major H. De Prée. |
| 20 $\frac{1}{4}$ | 6 $\frac{1}{8}$ | 8 $\frac{7}{8}$ | Ndara Teita . . . | C. Steuart Betton. |
| 19 | 6 | 5 $\frac{1}{4}$ | Taru Desert . . . | Comm'd. G. H. Welch, R.N. |
| ♀ 14 | 3 $\frac{1}{4}$ | 4 $\frac{1}{2}$ | Machakos . . . | Abe Bailey. |



Head of Soemmerring's Gazelle.

The AOUL or SÖMMERRING'S GAZELLE (*Gazella soemmerringi*).

Aoul, Somali.

Meidafihel, Abyssinian.

Maédedo, Danakil.

Ariel, Sudani.

In this species the white of the rump-patch extends more into the fawn-area than in *granti*; there is generally no black streak dividing the sides of the rump-patch from the fawn of the body, the face-markings are black, and the horns, which are shorter and more massive than in *granti*, hook inwards at the tips. The tail, except for its black crest, is white. Height at shoulder about $35\frac{1}{2}$ inches. Weight, clean, about 90 lbs.

Distribution.—The Abyssinian coast of the Red Sea, Berber, East Sennar, Danakil, Bora-Gallaland, and Somaliland; in the latter country occurring all over the Haud and Ogaden. The North Somali *G. s. berberana* is larger and darker than the typical form, with differently curved horns.

A.—SOMALI RACE (G. søemmerringi berberana).

| Length on front curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|---------------------------|---------------------|-----------------|------------------|--------------------------------|
| 23 | $4\frac{7}{8}$ | $13\frac{1}{2}$ | Somaliland . . . | G. H. Kirkpatrick. |
| 21 | $5\frac{1}{4}$ | 10 | Do. . . . | Major P. H. G. Powell-Cotton. |
| 21 | $6\frac{1}{4}$ | $4\frac{3}{4}$ | Do. . . . | Col. V. M. Stockley. |
| $20\frac{3}{4}$ | $6\frac{3}{4}$ | ... | Do. . . . | W. N. McMillan. |
| $20\frac{3}{4}$ | $5\frac{3}{4}$ | $3\frac{5}{8}$ | Do. . . . | G. H. Cheetham. |
| $20\frac{1}{4}$ | 6 | $4\frac{5}{8}$ | Do. . . . | Norman B. Smith. |
| $20\frac{1}{4}$ | $5\frac{1}{2}$ | $7\frac{1}{2}$ | Do. . . . | Capt. A. E. Burnett. |
| $20\frac{1}{4}$ | $5\frac{3}{4}$ | 3 | Do. . . . | Capt. J. W. C. Kirk. |
| $20\frac{1}{4}$ | $5\frac{1}{4}$ | $6\frac{3}{4}$ | Do. . . . | Capt. A. E. H. Breslin. |
| 20 | $5\frac{1}{4}$ | $5\frac{5}{8}$ | Do. . . . | Hon. Walter Rothschild. |
| 20 | $5\frac{3}{4}$ | 4 | Do. . . . | Lieut.-Col. J. W. H. Flanagan. |
| 20 | 6 | $7\frac{1}{4}$ | Do. . . . | A. Louw. |
| 20 | $5\frac{1}{4}$ | $5\frac{1}{2}$ | Danakil . . . | Viscount Edmond de Poncins. |
| ♀-20 | ... | $5\frac{3}{4}$ | Somaliland . . . | A. E. Pease. |
| 20 | $5\frac{1}{2}$ | $5\frac{1}{4}$ | Do. . . . | Capt. H. du B. O'Neill. |
| 20 | $5\frac{7}{8}$ | ... | Do. . . . | Maj.-Gen. A. N. Rochfort. |
| $19\frac{3}{4}$ | $5\frac{1}{8}$ | $5\frac{3}{8}$ | The Haud . . . | Major P. H. G. Powell-Cotton. |
| $19\frac{3}{4}$ | $5\frac{1}{4}$ | $6\frac{3}{4}$ | Somaliland . . . | Julius Jeppe. |
| $19\frac{1}{2}$ | $5\frac{1}{2}$ | $5\frac{5}{8}$ | Do. . . . | T. W. H. Clarke. |
| $19\frac{1}{2}$ | $5\frac{9}{10}$ | 2 | Do. . . . | Sir Edmund G. Loder, Bart. |
| $19\frac{1}{2}$ | $5\frac{1}{2}$ | $4\frac{5}{4}$ | Do. . . . | Major J. J. Richardson. |
| $19\frac{1}{2}$ | $5\frac{1}{2}$ | $4\frac{5}{8}$ | Do. . . . | Count J. Potocki. |
| $19\frac{1}{2}$ | $5\frac{1}{4}$ | $15\frac{1}{4}$ | Do. . . . | R. M'D. Hawker. |
| $19\frac{1}{4}$ | $5\frac{1}{4}$ | $4\frac{1}{2}$ | Do. . . . | Major B. L. Carew. |
| $19\frac{1}{4}$ | $5\frac{3}{4}$ | $7\frac{3}{4}$ | Do. . . . | H. C. Dobbs. |
| ♀ $18\frac{1}{4}$ | ... | 6 | Do. . . . | T. W. H. Clarke. |

- Owner's measurements.

B.—TYPICAL RACE (*G. søemmerringi typica*).

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|-----------------|-----------------|----------------|------------------------------------|
| 17 | 5 | 5 | Sudan | Count J. Potocki. |
| 16 $\frac{3}{4}$ | 5 $\frac{1}{4}$ | 10 | Do. | J. H. Butler. |
| 16 $\frac{1}{2}$ | 5 $\frac{3}{4}$ | 3 $\frac{1}{2}$ | Do. | Prince Colloredo Mansfeld. |
| 16 $\frac{3}{4}$ | 5 | 5 $\frac{1}{2}$ | Do. | C. D. Eyre. |
| 16 | 5 $\frac{1}{4}$ | 5 | Do. | Commdr. A. H. Home, R.N. |
| 16 | 5 | 4 $\frac{1}{2}$ | Do. | Capt. N. A. Orr Ewing. |
| 16 | 5 | 3 $\frac{1}{4}$ | Do. | G. L. Harrison. |
| 16 | 4 $\frac{1}{2}$ | 5 $\frac{1}{4}$ | Do. | Col. A. Colville. |
| 15 $\frac{3}{4}$ | 5 $\frac{1}{2}$ | 5 $\frac{3}{4}$ | Do. | Major H. H. S. Morant. |
| 15 $\frac{3}{8}$ | 5 $\frac{1}{2}$ | 5 | Do. | C. Bower Ismay. |
| 15 $\frac{1}{2}$ | 5 $\frac{1}{4}$ | 3 $\frac{3}{4}$ | Do. | Capt. P. C. Lord. |
| 15 $\frac{1}{2}$ | 5 $\frac{3}{8}$ | 5 | Do. | Col. Ralph Vivian. |
| 15 $\frac{1}{2}$ | 5 | 5 | Do. | Capt. Lord J. S. Cavendish. |
| 15 $\frac{1}{2}$ | 5 $\frac{1}{4}$ | 6 $\frac{3}{4}$ | Do. | Earl of Sefton. |
| ♀ 15 $\frac{1}{4}$ | 2 $\frac{7}{8}$ | 7 $\frac{3}{8}$ | Do. | The late Lieut.-Col. Hon. W. Coke. |
| 15 $\frac{1}{4}$ | 5 $\frac{1}{4}$ | 6 $\frac{3}{4}$ | Do. | Major J. L. J. Conry. |
| 15 | 5 | 4 $\frac{3}{4}$ | Do. | H. A. Smiley. |
| 15 | 5 | 6 | Suakin | Hon. Walter Rothschild. |
| 15 | 5 $\frac{1}{2}$ | 6 $\frac{3}{4}$ | Sudan | F. W. Greswolde-Williams. |

C.—BORANI RACE (*G. søemmerringi butteri*).

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|-----------------|-----------------|------------------|---------------|
| 13 $\frac{1}{4}$ | 4 $\frac{3}{4}$ | 3 $\frac{1}{2}$ | Boraland | A. E. Butter. |



Head of Addra Gazelle.

The **DAMA, MHORR, or ADDRA GAZELLE** (*Gazella dama*).

Addra, Dongolese. *Rüel*, Dinka. *Ariel*, Sudani.

The largest species of the genus *Gazella*, standing 36 or 37 inches at the shoulder, and characterised by the white of the rump including the tail (which may be tipped with fawn), coupled with the absence of a black border to the rump-patch and of a dark flank-band, and the forward hook of the tips of the horns. In the mhorr or Morocco race (*G. d. mhorr*) of Southern Morocco there are dark face-markings, and the rufous of the body extends down the legs. In the Senegambian *G. d. permista* the rufous occupies a smaller area on the body, and there is only a narrow bridge connecting the rufous of the back with that of the hind-legs, while in the fore-legs the upper part is wholly white, and there is only a rufous streak in front below the knee. The typical *G. d. typica*, probably from Lake Chad, connects the mhorr with the addra or Kordofan race (*G. d. ruficollis*), in which the rufous is limited to the neck and a saddle-shaped area on the back.

Distribution.—The desert regions of northern, western, and north-eastern Africa, from Nigeria and Senegambia through Morocco to Kordofan.

A.—TYPICAL RACE (*G. dama typica*).

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|-----------------|-----------------|------------------|--------------------------------|
| 14 $\frac{7}{8}$ | 5 $\frac{3}{4}$ | 8 $\frac{1}{2}$ | Lake Chad . . . | C. S. Burnett. |
| 14 | 6 $\frac{1}{4}$ | 5 $\frac{1}{4}$ | Do. . . . | Capt. L. C. Brodie. |
| 13 $\frac{3}{4}$ | 5 $\frac{1}{2}$ | 6 $\frac{3}{4}$ | Do. . . . | A. B. Baillie-Hamilton. |
| 13 $\frac{1}{4}$ | 5 $\frac{1}{4}$ | 7 $\frac{1}{2}$ | Do. . . . | Capt. J. B. Cockburn. |
| 13 $\frac{3}{4}$ | 5 $\frac{3}{4}$ | 3 $\frac{1}{4}$ | Do. . . . | Major D. F. MacCarthy Morrogh. |
| -13 $\frac{1}{4}$ | 6 $\frac{1}{2}$ | 6 $\frac{1}{2}$ | Do. . . . | C. F. Watson. |
| -12 $\frac{1}{2}$ | 6 $\frac{1}{4}$ | 6 | Do. . . . | Sir Edmund G. Loder, Bart. |
| 12 $\frac{1}{4}$ | 5 $\frac{3}{8}$ | 6 | N. Nigeria . . . | Capt. G. C. Kelly. |
| 12 $\frac{1}{8}$ | 5 $\frac{3}{4}$ | 6 $\frac{3}{4}$ | Lake Chad . . . | Sir F. Lugard. |
| ♀ 11 | 3 $\frac{1}{4}$ | 5 $\frac{1}{4}$ | Do. . . . | C. S. Burnett. |

B.—SENEGAMBIAN RACE (*G. dama permista*).

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|-----------------|-----------------|-----------|-------------------------|
| 8 $\frac{1}{2}$ | 3 $\frac{1}{2}$ | 5 $\frac{3}{8}$ | ? | Hon. Walter Rothschild. |

C.—MHOOR or MOROCCAN RACE (*G. dama mhorri*).

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|----------------|-----------------|------------------------|--------------------------------|
| 11 $\frac{3}{4}$ | 6 | 3 $\frac{1}{4}$ | Wednoon, Mogador . . . | British Museum (W. Willshire). |

D.—ADDRA or KORDOFAN RACE (*G. dama ruficollis*).

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|-----------------|------------------|------------------|--------------------------|
| 15 $\frac{1}{4}$ | 5 $\frac{1}{8}$ | 15 $\frac{1}{2}$ | Kordofan | Capt. C. E. Hills. |
| -15 $\frac{1}{4}$ | 5 $\frac{3}{4}$ | 6 | Do. . . . | H. A. MacMichael. |
| -15 | ... | ... | Do. . . . | A. L. Butler. |
| 14 $\frac{7}{8}$ | 5 | 3 $\frac{7}{8}$ | Do. . . . | W. Mure. |
| 14 $\frac{3}{4}$ | 6 | 7 | Do. . . . | Major H. G. F. Stallard. |
| 14 $\frac{1}{4}$ | 5 $\frac{1}{4}$ | 10 $\frac{1}{4}$ | Do. . . . | G. L. Harrison. |

Owner's measurements.

| Length on front curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|------------------------------|---------------------|------------------|--------------------|------------------------------------|
| 14 $\frac{3}{4}$ | 4 $\frac{3}{4}$ | 9 $\frac{1}{4}$ | Kordofan | Lord Villiers. |
| 14 $\frac{3}{4}$ | 5 $\frac{1}{4}$ | 6 $\frac{5}{8}$ | Do. | Norman B. Smith. |
| 14 $\frac{3}{4}$ | 5 $\frac{1}{4}$ | 6 $\frac{1}{4}$ | Do. | Walter Jones. |
| 14 $\frac{5}{8}$ | 5 $\frac{3}{4}$ | 11 $\frac{7}{8}$ | Do. | Sir Robert Harvey, Bart. |
| 14 $\frac{1}{2}$ | 5 $\frac{1}{2}$ | 7 $\frac{1}{4}$ | Do. | Major C. J. Hawker. |
| 14 $\frac{3}{8}$ | 5 $\frac{3}{4}$ | 8 $\frac{1}{8}$ | Do. | Capt. G. M. Lumsden. |
| 14 | 5 $\frac{3}{4}$ | 7 $\frac{1}{2}$ | Do. | Capt. B. W. Y. Danford. |
| 13 $\frac{3}{4}$ | 5 $\frac{3}{8}$ | 4 $\frac{3}{4}$ | Do. | Maj.-Gen. B. T. Mahon. |
| 13 $\frac{3}{4}$ | 6 | 5 $\frac{1}{4}$ | Do. | G. Chetwynd. |
| 13 $\frac{3}{4}$ | 5 $\frac{1}{2}$ | 4 $\frac{3}{8}$ | Do. | Capt. G. S. Cameron. |
| 13 $\frac{1}{2}$ | 5 $\frac{1}{8}$ | 10 $\frac{1}{4}$ | Do. | Capt. F. L. Livingstone-Learmonth. |
| 13 $\frac{1}{2}$ | 5 $\frac{1}{4}$ | 11 $\frac{1}{4}$ | Do. | Earl of Kingston. |
| 13 $\frac{1}{4}$ | 6 | 9 $\frac{1}{4}$ | Do. | B. Chew. |
| 12 $\frac{3}{4}$ | 6 | 5 $\frac{3}{4}$ | Do. | Major C. S. Cumberland. |
| 12 $\frac{3}{4}$ | 5 $\frac{1}{4}$ | 4 | Do. | Hon. Walter Rothschild. |
| ♀ 12 $\frac{3}{4}$ | 3 $\frac{3}{4}$ | 6 $\frac{1}{4}$ | Do. | Maj.-Gen. B. T. Mahon. |
| ♀ 12 $\frac{1}{2}$ | 3 $\frac{1}{2}$ | 3 $\frac{3}{4}$ | Do. | Sir Edmund G. Loder, Bart. |
| 12 $\frac{1}{2}$ | 5 $\frac{3}{8}$ | 6 $\frac{3}{8}$ | Do. | E. N. Buxton. |
| 12 $\frac{1}{4}$ | 4 | 5 $\frac{5}{8}$ | Sennar | British Museum. |
| ♀ 12 $\frac{1}{4}$ | 3 $\frac{3}{4}$ | 6 $\frac{3}{4}$ | Do. | C. S. Mann. |
| 11 $\frac{5}{8}$ | 5 $\frac{5}{8}$ | 4 $\frac{1}{4}$ | Kordofan | British Museum (Major H. N. Dunn). |

- Owner's measurements.



Head of Dibatag.

The DIBATAG or CLARKE'S GAZELLE (*Ammodorcas clarkei*).

Although resembling the true gazelles in the face-markings, the dibatag, as it is called by the Somalis, is so different from those antelopes as to be entitled to constitute a genus by itself, being in many respects intermediate between the former and the gerenuk. The horns, which are present only in the males, are rather short, and have a regular upward and forward curvature, somewhat like those of a reedbuck; they are ridged on the front for a considerable portion of their length. The neck is considerably elongated, and the tail long and thin. The general colour of the upper-parts is a deep cinnamon. Height at shoulder about 33 inches; weight from 65 to 70 lbs. When running, the long neck is thrown back towards the tail, which is elevated, so that the two look as though they would touch. Discovered by Mr. T. W. H. Clarke in 1890.

Distribution.—Central Somaliland, in the eastern districts of the Haud.

RECORDS OF BIG GAME

| Length on front curve. | Circum- ference. | Tip to Tip. | Owner. |
|------------------------------|---------------------|------------------|-----------------------------------|
| -13 | ... | ... | J. D. Inverarity. |
| -12 $\frac{3}{4}$ | ... | ... | G. G. S. Brander. |
| 12 $\frac{5}{8}$ | 5 $\frac{1}{4}$ | 4 $\frac{5}{8}$ | Hon. Walter Rothschild. |
| 11 $\frac{11}{4}$ | 4 $\frac{7}{8}$ | 3 $\frac{5}{8}$ | Lieut.-Gen. Sir Arthur Paget. |
| 11 $\frac{3}{4}$ | 4 $\frac{3}{4}$ | 3 $\frac{5}{8}$ | T. W. H. Clarke. |
| -11 $\frac{3}{4}$ | 4 $\frac{1}{4}$ | 5 | Capt. J. Brander-Dunbar. |
| 11 $\frac{1}{4}$ | 4 $\frac{1}{4}$ | 6 | R. M'D. Hawker. |
| 11 $\frac{1}{4}$ | 4 $\frac{1}{2}$ | 4 $\frac{3}{4}$ | Col. J. E. Gough. |
| -11 $\frac{1}{8}$ | 4 $\frac{1}{2}$ | 5 $\frac{7}{16}$ | Capt. M. M'Neill. |
| 11 | 5 $\frac{1}{2}$ | 2 $\frac{1}{4}$ | Capt. B. R. M. Glossop. |
| 11 | 5 | 5 $\frac{1}{2}$ | S. Payne-Gallwey. |
| -10 $\frac{7}{8}$ | 4 $\frac{1}{4}$ | 5 | P. C. Keytel. |
| 10 $\frac{3}{4}$ | 4 $\frac{1}{4}$ | 4 $\frac{3}{4}$ | Mr. Justice Hopley. |
| 10 $\frac{3}{4}$ | 5 $\frac{1}{2}$ | 4 | Sir Edmund G. Loder, Bart. |
| 10 $\frac{3}{8}$ | 4 $\frac{1}{2}$ | 3 | Capt. B. E. Murray. |
| 10 $\frac{1}{4}$ | 4 $\frac{3}{4}$ | 4 $\frac{5}{8}$ | Capt. A. H. Mosse. |
| 10 $\frac{1}{8}$ | 4 $\frac{1}{8}$ | 4 $\frac{1}{2}$ | Major P. H. G. Powell-Cotton. |
| 9 $\frac{3}{4}$ | 4 $\frac{1}{2}$ | 5 $\frac{1}{8}$ | British Museum (T. W. H. Clarke). |
| 9 $\frac{1}{2}$ | 4 $\frac{1}{2}$ | 4 $\frac{5}{8}$ | R. E. Drake-Brockman. |
| 9 $\frac{1}{2}$ | 5 | 5 | Capt. F. R. Tarleton. |

- Owner's measurements.



Head of Gerenuk.



Record Head of Gerenuk. From a specimen shot by H.R.II. the Duc d'Orléans.

The GERENUK or WALLER'S GAZELLE (*Lithocranius walleri*).

Gerenuk, Somali. *Gudan Godu*, Danakil. *Gǔgǔfto*, Galla.

Even more aberrant than the last is the gerenuk, in which the elongation of the neck attains its supreme development, while the slender legs are lengthened in proportion. Horns are wanting in the females, and those of the males curve forwards at the tips, where the ridges stop, in a peculiarly characteristic manner. The general colour of the upper-parts is deep rufous fawn, but down the middle of the back runs a broad brown band, nearly eight inches in width. The skull is characterised by its dense and solid structure, as well as by its straightness, the shortness of the facial portion, and the very small size of the cheek-teeth. Height at shoulder from about 36 to 41 inches; weight, 115 lbs.

This antelope—first described by the late Sir V. Brooke on the evidence of a flat skin—is in the habit of raising itself on its hind-legs when browsing, and is thus enabled to reach boughs at a very considerable distance above the ground

Mr. Oscar Neumann pointed out in 1899 that the Somali and Abyssinian gerenuk (*L. walleri sclateri*) is somewhat different from the East African or typical gerenuk. The northern race is larger, with finer horns, a longer neck, a less rufous colour, and lacks the black knee-tufts, while the white markings of the tail are also different.

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|-----------------|-----------------|-------------------|--|
| 17 | 5 $\frac{1}{2}$ | 3 $\frac{3}{4}$ | Somaliland . . . | H.R.H. the Duc d'Orléans. (See illustration.) |
| 16 $\frac{1}{2}$ | 5 $\frac{1}{2}$ | 1 $\frac{5}{8}$ | Do. . . . | Mr. Justice Hopley. |
| 16 | 5 $\frac{3}{4}$ | 6 | Do. . . . | Sir Edmund G. Loder, Bart. |
| 16 | 5 $\frac{1}{2}$ | 2 $\frac{3}{4}$ | East Africa . . . | W. H. Levy. |
| 15 $\frac{1}{2}$ | 5 $\frac{1}{2}$ | 3 | Somaliland . . . | J. Kenneth Foster. |
| 15 $\frac{1}{2}$ | 5 $\frac{7}{8}$ | 4 $\frac{7}{8}$ | Do. . . . | American National Collection. |
| 15 $\frac{3}{8}$ | 5 $\frac{5}{8}$ | 4 | Do. . . . | Col. H. G. C. Swayne. |
| 15 $\frac{3}{8}$ | 5 $\frac{3}{8}$ | 4 $\frac{1}{8}$ | Do. . . . | C. Liddell. |
| 15 $\frac{3}{8}$ | 5 $\frac{3}{8}$ | 4 $\frac{3}{4}$ | Do. . . . | Lord Wolverton. |
| 15 $\frac{1}{2}$ | 5 $\frac{1}{2}$ | 4 $\frac{3}{4}$ | Do. . . . | Abe Bailey. |
| 15 | 6 $\frac{1}{4}$ | 4 $\frac{1}{4}$ | Do. . . . | R. C. Corfield. |
| 15 | 5 $\frac{1}{2}$ | 4 $\frac{1}{2}$ | East Africa . . . | J. E. R. Oldfield. |
| 15 | 5 $\frac{3}{8}$ | 6 $\frac{3}{8}$ | Somaliland . . . | F. G. Gunnis. |
| 15 | 5 | 4 $\frac{3}{4}$ | Do. . . . | Lieut.-Col. J. M'Call Maxwell. |
| 15 | 5 $\frac{3}{4}$ | 4 $\frac{1}{2}$ | Do. . . . | Capt. H. Maclean. |
| 14 $\frac{3}{4}$ | 5 | ... | Abyssinia . . . | N. C. Cockburn. |
| 14 $\frac{3}{4}$ | 5 $\frac{1}{2}$ | 5 $\frac{1}{4}$ | East Africa . . . | G. de P. Colvile. |
| 14 $\frac{3}{4}$ | 5 $\frac{3}{4}$ | 5 $\frac{3}{4}$ | Somaliland . . . | Lieut.-Col. H. G. Mainwaring. |
| 14 $\frac{3}{4}$ | 5 $\frac{5}{8}$ | 4 $\frac{1}{2}$ | East Africa . . . | C. C. Wilson. |
| 14 $\frac{3}{4}$ | 5 $\frac{1}{2}$ | 2 $\frac{3}{4}$ | Do. . . . | Lieut.-Col. J. H. Patterson. |
| 14 $\frac{3}{8}$ | 5 $\frac{3}{8}$ | 3 $\frac{3}{4}$ | Somaliland . . . | A. de L. Long. |
| 14 $\frac{1}{2}$ | 5 $\frac{3}{4}$ | 6 $\frac{1}{2}$ | East Africa . . . | H. S. L. Scott. |
| 14 $\frac{1}{2}$ | 5 $\frac{1}{2}$ | 4 $\frac{3}{4}$ | Do. . . . | Capt. the Hon. G. H. Douglas Pennant. |
| 14 $\frac{1}{2}$ | 5 | 4 $\frac{3}{8}$ | Do. . . . | A. F. Williams. |

Owner's measurements.



Head of Sable Antelope.

The SABLE ANTELOPE (*Hippotragus niger*).

Impengo, Masubia.

Impalampala, Swazi and Zulu.

Ukwa, Makuba.

Potoquani, Southern Bechuana.

Pala-hala, Swahili.

Pala-pala, Makalaka.

Solupi, Masara.

Qualata inchu, Bamangwato and
Makololo.

Utjieli, Amandebili.

Kwalata n'tso, Barotsi.

Qualata Tshumu, Ngami.

Mperembi, Chilala and Chibisa.

Mpalari, M'Rua.

Kantanta, Chila.

Among the leading features of the group of antelopes which includes the present species, the roan antelope, the gemsbuck, addax, etc., are the scimitar-shaped, conical, or spiral horns, which are placed just over the eyes and are present in both sexes, the hairy muzzle, the absence of face-glands, and the long, tufted tail. The upper molar teeth have square grinding-surfaces and tall crowns, like those of oxen. Several of the species have face-markings like those of the gazelles, to which the group is probably related.

From the other members of the group the beautiful sable antelope and its near ally the roan antelope are well distinguished by the scimitar-shaped horns, which arise at an obtuse angle with the plane of the face, as well as by the maned neck, the tufts of long white hair

below the eyes, and the large ears. By far the handsomer of the two is the present species, whose sable coat and great length of horn render the buck the most striking of its tribe. Other distinctive features are the continuance of the white eye-stripe to the muzzle, the length of the mane, and the relatively moderate size of the ears. The sable antelope when wounded is a dangerous antagonist, to be approached with extreme caution; it runs with considerable speed, and possesses much staying power. Height at shoulder about $4\frac{1}{2}$ feet. A single horn in the Florence Museum, measured by Mr. F. C. Selous, is 61 inches on the front curve.

Distribution.—From about the centre of the Transvaal northwards to Nyasaland and the adjacent districts of South-East and East Africa, and westwards to Angola. Still abundant in parts of Eastern Mashonaland, and thence towards the coast, as well as on the Batoka plateau to the north of the Zambesi. Scarcer in Central East Africa and Mozambique.

A.—TYPICAL RACE.

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|-----------------|-----------------|---------------------------|---------------------------|
| $54\frac{1}{4}$ | ... | ... | Angola | Essington Brown. |
| $52\frac{1}{2}$ | ... | ... | River Line, S.E. Africa . | Abe Bailey. |
| 52 | 10 | 16 | Angola | Major Boyd A. Cuninghame. |
| 51 | $10\frac{1}{2}$ | 11 | N.W. Rhodesia | A. P. Heneage. |
| $50\frac{7}{8}$ | $9\frac{1}{2}$ | $18\frac{1}{4}$ | Do. | Hon. Walter Rothschild. |
| $50\frac{3}{4}$ | 10 | $19\frac{1}{2}$ | Do. | G. F. Williams. |
| $50\frac{1}{8}$ | $9\frac{1}{4}$ | $23\frac{3}{4}$ | Do. | C. G. Leslie. |
| 50 | $10\frac{7}{8}$ | $7\frac{1}{4}$ | Do. | Norman B. Smith. |
| $49\frac{5}{8}$ | $10\frac{7}{8}$ | 12 | Do. | T. P. Kempson. |
| $48\frac{3}{4}$ | 10 | $23\frac{1}{4}$ | Do. | J. H. Hayes. |
| $48\frac{3}{4}$ | $9\frac{1}{2}$ | $17\frac{1}{4}$ | Do. | R. A. M'Clymont. |
| $48\frac{1}{2}$ | $9\frac{1}{4}$ | $22\frac{3}{4}$ | Do. | E. Caldwell. |
| $48\frac{1}{4}$ | 10 | 20 | Do. | Major P. A. Cox. |
| 48 | $10\frac{1}{4}$ | $15\frac{3}{4}$ | Matabililand | Major J. P. Grenfell. |
| 48 | ... | $15\frac{3}{4}$ | Transvaal | Lieut.-Col. R. B. Fell. |
| $47\frac{3}{4}$ | $10\frac{1}{4}$ | 29 | Rhodesia | C. S. Mann. |
| $47\frac{3}{4}$ | 10 | $23\frac{1}{2}$ | Do. | R. T. Coryndon. |
| $47\frac{3}{4}$ | $9\frac{3}{4}$ | $13\frac{1}{4}$ | Do. | J. L. Philips. |
| $47\frac{5}{8}$ | $9\frac{3}{4}$ | 11 | Do. | Major E. de L. Hayes. |
| $47\frac{1}{2}$ | 10 | 9 | Do. | S. R. Price. |

— Owner's measurements.

| Length on front curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|------------------------------|---------------------|------------------|----------------------------|----------------------------|
| 47 $\frac{1}{4}$ | 9 $\frac{7}{8}$ | 23 $\frac{1}{2}$ | N.W. Rhodesia . . . | Col. C. Harding. |
| 46 $\frac{3}{4}$ | 9 $\frac{1}{4}$ | 13 | N.E. Rhodesia . . . | H. Cookson. |
| 46 $\frac{3}{4}$ | 9 $\frac{1}{4}$ | 19 $\frac{1}{2}$ | N.W. Rhodesia . . . | Dr. E. H. Tripp. |
| 46 $\frac{1}{2}$ | 9 $\frac{1}{4}$ | 12 $\frac{1}{4}$ | Do. . . . | F. Barker. |
| 46 $\frac{1}{2}$ | 10 | 15 | Ngamiland . . . | F. T. Garbutt. |
| 46 $\frac{1}{2}$ | 9 $\frac{1}{2}$ | 14 | N.W. Rhodesia . . . | Sir Arthur Lawley. |
| 46 $\frac{1}{4}$ | 10 | 11 $\frac{1}{4}$ | Do. . . . | G. L. Harrison. |
| 46 $\frac{1}{4}$ | 9 $\frac{1}{4}$ | 21 $\frac{1}{4}$ | Do. . . . | J. M. Kearney. |
| 46 | 10 | 11 $\frac{1}{4}$ | Do. . . . | T. G. Davey. |
| 46 | 11 | 15 | Do. . . . | R. C. Forster. |
| 46 | 10 $\frac{1}{4}$ | 15 $\frac{1}{2}$ | Do. . . . | T. Clemens Usher. |
| 46 | 9 $\frac{3}{4}$ | 16 $\frac{1}{2}$ | British Central Africa . . | Capt. R. S. Chichester. |
| 45 $\frac{3}{4}$ | 10 $\frac{3}{4}$ | 12 $\frac{1}{2}$ | Do. . . . | Sir Edmund G. Loder, Bart. |
| 45 $\frac{3}{4}$ | 10 $\frac{3}{4}$ | 16 $\frac{1}{2}$ | Rhodesia . . . | A. Yale Massey. |
| 45 $\frac{1}{2}$ | 9 $\frac{1}{4}$ | 15 $\frac{1}{2}$ | Mashonaland . . . | Major G. A. L. Carew. |
| 45 $\frac{1}{2}$ | 10 $\frac{1}{2}$ | ... | N.W. Rhodesia . . . | H. B. Marshall. |
| 45 $\frac{1}{2}$ | 10 $\frac{1}{2}$ | 13 $\frac{1}{4}$ | Do. . . . | A. C. Brandon. |
| 45 $\frac{1}{2}$ | 10 | 13 | Do. . . . | Dr. Cole. |
| 45 $\frac{1}{4}$ | 10 | 14 $\frac{1}{2}$ | Do. . . . | Capt. P. R. Bald. |
| 45 $\frac{1}{4}$ | 9 $\frac{1}{2}$ | 12 $\frac{1}{4}$ | S.E. Mashonaland . . . | J. G. Millais. |
| 45 | 9 $\frac{1}{2}$ | 5 $\frac{1}{2}$ | N.W. Rhodesia . . . | T. D. M. Cardeza. |
| 45 | 10 | 13 $\frac{1}{2}$ | Do. . . . | H. E. E. Pankhurst. |
| 45 | 9 $\frac{3}{8}$ | 13 | S. Rhodesia . . . | R. Adamson. |
| 44 $\frac{3}{4}$ | 10 | 13 $\frac{3}{4}$ | N.W. Rhodesia . . . | R. Campbell Heathcote. |
| 44 $\frac{1}{2}$ | 9 | 17 | Transvaal . . . | Sir J. P. Fitzpatrick. |
| 44 $\frac{1}{2}$ | 9 $\frac{1}{2}$ | 8 $\frac{1}{4}$ | Eastern Mashonaland . . | F. C. Selous. |
| 44 $\frac{1}{8}$ | 9 $\frac{1}{2}$ | 14 $\frac{1}{2}$ | Transvaal . . . | Abel Chapman. |
| ♀ 39 $\frac{1}{2}$ | 6 $\frac{1}{4}$ | 6 $\frac{3}{8}$ | Mashonaland . . . | F. C. Selous. |

B.—EAST AFRICAN RACE (*H. niger roosevelti*).

| Length on front curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|------------------------------|---------------------|------------------|---------------------------|------------------------------|
| 37 | 9 | 11 $\frac{1}{2}$ | British East Africa . . . | C. Bower Ismay. |
| 35 | 8 $\frac{1}{4}$ | 6 $\frac{1}{2}$ | Do. . . . | British Museum (G. J. Muir). |
| 34 $\frac{1}{2}$ | 8 $\frac{3}{4}$ | 13 $\frac{1}{2}$ | Do. . . . | N. C. Cockburn. |
| 34 | 9 $\frac{1}{2}$ | 6 $\frac{3}{4}$ | Do. . . . | G. G. Longden. |

The East African race was described, as a distinct species, in 1910 by Mr. Heller on the evidence of a female killed in the Shimba Hills, British East Africa, and said to be paler in colour than the typical race.



Horns of Bull Sable, shot by Mr. Essington Brown, Quanza River District, Angola.
Length (owner's measurements), 54½ inches.



Head of Roan Antelope.

The ROAN ANTELOPE (*Hippotragus equinus*).

Abu ōruff, Dinka and Arabic.

I-taka, Amandebili.

I-pala-pala chena, Makalaka.

Gwenki, Hausa.

Impengo cetuba, Masubia.

Kwar, Masara.

Klabakila, Basuto.

Ipewa, Chilala and Chibisa.

Mtagaisi, Swazi and Zulu.

U-ka-muh-wi, Makuba.

Qualata, Northern Bechuana.

Kwalata and *Etselta*, Ngami.

Qualata Tseu, Barotsi.

Tai-hait-sa, Southern Bechuana.

Wunderbi, Abyssinian.

Abū aruf, Sudani.

Chilumbulumbu, Chila.

Its much larger size (height at shoulder about 4 feet 9 inches), the shorter horns and mane, the larger ears and eye-tufts, and, above all, the grizzled roan coat, render the present species easily distinguishable from its sable cousin. A marked character of the face of the roan antelope is the cutting-off of the white eye-stripe from the muzzle by a transverse dark bar connecting the dark nose-streak with the brown of the cheeks; while the dark nose-streak itself likewise stops short of the muzzle, which is thus wholly white. Weight about 625 lbs.

Distribution.—From north of the Vaal and Orange Rivers through East and East Central Africa to the Sudan and Abyssinia, and westward

to Angola, Nigeria, and Senegambia. The name *H. equinus langheldi* has been applied to the East African race, while the Sudani race is known as *H. e. bakeri*, and the West African as *H. e. gambianus*. Gordon Cumming shot the roan antelope just north of the Orange River in Griqualand West, where it has for many years been exterminated. Nowhere abundant, the species is most plentiful in Mashonaland and neighbouring districts; in the Transvaal it is only sparsely distributed. South of the Orange River this group of antelopes was formerly represented by the much smaller blaauwbok or blue antelope (*H. leucophaeus*), long since exterminated.

A.—TYPICAL RACE (H. equinus typicus).

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|------------------|------------------|------------------------------|------------------------------------|
| -39 $\frac{1}{4}$ | ... | ... | Tokwi Valley, South Rhodesia | South African Museum (R. C. Camp). |
| -35 | 9 $\frac{1}{2}$ | 8 $\frac{1}{2}$ | South Africa | A. Ohlsson. |
| 34 $\frac{1}{4}$ | 9 | 7 | Okavango Valley | Sir H. J. Goold-Adams. |
| 32 $\frac{3}{4}$ | 8 $\frac{5}{8}$ | 9 $\frac{1}{2}$ | Mashonaland | Abe Bailey. |
| 32 $\frac{1}{2}$ | 9 | 9 $\frac{1}{4}$ | Do. | W. A. Simpson Hinchliffe. |
| 32 | 9 $\frac{1}{2}$ | 12 | Hanyani Valley | F. C. Selous. |
| 31 $\frac{3}{4}$ | 9 $\frac{1}{2}$ | 5 $\frac{1}{2}$ | South Africa | Sir Edmund G. Loder, Bart. |
| 31 $\frac{1}{2}$ | 9 $\frac{1}{2}$ | 11 $\frac{7}{8}$ | Mashonaland | F. C. Selous. |
| 31 $\frac{1}{2}$ | 9 | 10 $\frac{1}{4}$ | N.W. Rhodesia | Lieut.-Col. Lord Douglas Compton. |
| -31 $\frac{1}{2}$ | 10 $\frac{1}{2}$ | 11 $\frac{1}{4}$ | Angola | E. P. Cooper. |
| ♀ 31 $\frac{1}{2}$ | 7 | 13 $\frac{1}{2}$ | Do. | Capt. E. C. Hamilton. |
| 31 | 8 $\frac{3}{4}$ | 13 | Mashonaland | J. A. Jameson. |
| ♀ 30 $\frac{1}{2}$ | 7 | 7 $\frac{3}{8}$ | Do. | F. C. Selous. |
| 30 $\frac{1}{2}$ | 9 | 13 $\frac{1}{4}$ | South Africa | G. Richards. |
| 30 $\frac{1}{2}$ | 9 | 13 $\frac{1}{2}$ | Angola | Major Boyd A. Cuningham. |
| 30 $\frac{1}{2}$ | 10 | 5 $\frac{3}{4}$ | Matabililand | Lord H. Seymour. |
| 30 $\frac{1}{2}$ | 9 $\frac{1}{4}$ | 13 | British C. Africa | Dr. J. E. S. Old. |
| 30 | 9 $\frac{1}{4}$ | 5 | Rhodesia | G. M. Spencer Smith. |
| 30 | 9 $\frac{1}{2}$ | 6 $\frac{3}{4}$ | British C. Africa | Capt. G. M. P. Hawthorne. |
| 30 | 10 | 11 $\frac{1}{2}$ | N.W. Rhodesia | Capt. L. C. Brodie. |

- Owner's measurements.

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|------------------|------------------|---------------------|----------------------------|
| 29 $\frac{7}{8}$ | 10 $\frac{1}{8}$ | 14 $\frac{5}{8}$ | Matabililand . . | W. Van Ness. |
| 29 $\frac{7}{8}$ | 9 $\frac{5}{8}$ | 11 $\frac{1}{4}$ | Mashonaland . . | Hon. Walter Rothschild. |
| 29 $\frac{3}{4}$ | 9 $\frac{5}{8}$ | 10 | Do. . . | Sir John Willoughby, Bart. |
| 29 $\frac{3}{4}$ | 9 $\frac{1}{4}$ | 6 | N.W. Rhodesia . . | Duke of Westminster. |
| ♀ 29 $\frac{1}{2}$ | 7 | 6 $\frac{1}{4}$ | British C. Africa . | R. H. Storey. |

B.—SUDANI RACE (*H. equinus bakeri*).

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|------------------|------------------|-------------|----------------------------------|
| 37 $\frac{1}{4}$ | 10 | 7 $\frac{1}{4}$ | Sudan . . . | P. Niedieck. |
| 34 $\frac{1}{2}$ | 10 | 9 | Do. . . | Maj.-Gen. B. T. Mahon. |
| 34 | 9 $\frac{7}{8}$ | 3 $\frac{1}{4}$ | Do. . . | Major J. L. J. Conry. |
| 34 | 9 $\frac{1}{4}$ | 5 $\frac{3}{8}$ | Do. . . | Major G. de H. Smith. |
| 33 $\frac{1}{4}$ | 10 | 17 $\frac{1}{4}$ | Do. . . | Marquis Pizzardi. |
| 33 | 8 $\frac{3}{4}$ | 10 | Do. . . | S. H. Whitbread. |
| 32 $\frac{3}{4}$ | 9 | 14 $\frac{3}{4}$ | Do. . . | Sir Savile Crossley, Bart. |
| 32 $\frac{1}{2}$ | 9 | 12 $\frac{1}{4}$ | Do. . . | Capt. E. Berry. |
| 32 $\frac{1}{2}$ | 9 $\frac{1}{4}$ | 13 $\frac{3}{8}$ | Do. . . | Capt. C. R. G. Mayne. |
| 32 $\frac{1}{2}$ | 9 $\frac{3}{4}$ | 15 | Do. . . | Capt. G. Stewart. |
| 32 $\frac{1}{2}$ | 9 | ... | Do. . . | R. M'D. Hawker. |
| 32 $\frac{1}{4}$ | 10 | 8 $\frac{3}{4}$ | Do. . . | G. H. Chceham. |
| 32 $\frac{1}{4}$ | 9 $\frac{1}{4}$ | 11 | Do. . . | Lord Villiers. |
| 32 $\frac{1}{4}$ | 9 $\frac{5}{8}$ | 13 $\frac{3}{8}$ | Do. . . | British Museum (Sir W. Garstin). |
| 32 | 9 $\frac{5}{8}$ | 5 $\frac{3}{4}$ | Do. . . | C. Adeane. |
| 32 | 9 $\frac{1}{4}$ | 13 | Do. . . | E. D. H. Tollemache. |
| 32 | 9 $\frac{1}{8}$ | 13 $\frac{1}{4}$ | Do. . . | Norman B. Smith. |
| 31 $\frac{1}{2}$ | 11 $\frac{1}{2}$ | 10 $\frac{1}{2}$ | Do. . . | Capt. G. L. Cameron. |
| 31 $\frac{1}{4}$ | 9 $\frac{1}{4}$ | 11 $\frac{1}{2}$ | Do. . . | R. B. Seager. |
| 31 $\frac{1}{4}$ | 9 | 4 $\frac{1}{2}$ | Do. . . | C. E. Russell. |
| 31 | 9 $\frac{1}{2}$ | 10 $\frac{1}{2}$ | Do. . . | Major the Hon. W. Guinness. |
| 31 | 8 $\frac{3}{4}$ | 12 $\frac{1}{2}$ | Do. . . | G. L. Harrison. |
| 31 | 9 | 10 | Do. . . | C. C. Tower. |

- Owner's measurements.

C.—WESTERN RACE (*H. equinus gambianus*).

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|-----------------|------------------|------------------|---|
| 33 | 9 $\frac{1}{2}$ | 17 $\frac{1}{2}$ | N. Nigeria . . . | G. C. W. King. |
| 30 $\frac{1}{2}$ | 9 | 10 $\frac{3}{4}$ | Nigeria . . . | Lieut.-Gen. Sir James Willcocks. |
| 29 $\frac{1}{2}$ | 9 | 9 $\frac{5}{8}$ | Do. . . . | Capt. E. J. Wolseley. |
| 28 $\frac{3}{4}$ | 8 $\frac{5}{8}$ | 12 $\frac{1}{2}$ | Gambia . . . | Dr. Percy Rendall (Charterhouse School Museum). |
| ♀ 28 $\frac{3}{4}$ | 6 $\frac{7}{8}$ | 2 $\frac{3}{4}$ | Nigeria . . . | The late Capt. G. H. F. Abadie. |
| 28 $\frac{3}{8}$ | 9 $\frac{1}{2}$ | 8 $\frac{3}{4}$ | Gold Coast . . . | Capt. G. H. Hastings. |
| 28 | 8 $\frac{1}{4}$ | 10 $\frac{3}{4}$ | Nigeria . . . | Capt. H. N. Kempthorne. |
| 27 $\frac{3}{4}$ | 9 $\frac{1}{2}$ | 11 $\frac{1}{4}$ | Do. . . . | Capt. G. C. Kelly. |
| 27 $\frac{3}{4}$ | 9 | 10 $\frac{1}{4}$ | Do. . . . | Dr. E. Charteris. |
| 27 | 8 $\frac{1}{2}$ | 9 $\frac{1}{2}$ | Do. . . . | Capt. F. E. Bissell. |

D.—EAST AFRICAN RACE (*H. equinus rufopallidus*).

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|-----------------|-----------------|-------------------|------------------------------|
| 29 $\frac{3}{8}$ | 9 $\frac{3}{4}$ | 9 | East Africa . . . | Stephenson R. Clarke. |
| 29 | 9 $\frac{1}{2}$ | 7 $\frac{1}{2}$ | Do. . . . | M. Bell. |
| 28 $\frac{3}{8}$ | 8 $\frac{5}{8}$ | 8 $\frac{3}{4}$ | Do. . . . | Walter Jones. |
| 27 $\frac{1}{2}$ | 9 $\frac{1}{2}$ | 7 $\frac{1}{4}$ | Do. . . . | Percy C. Madeira. |
| 27 $\frac{1}{4}$ | 9 $\frac{1}{2}$ | 8 | Do. . . . | W. L. Spencer Churchill. |
| 27 | 9 $\frac{1}{2}$ | 4 $\frac{1}{4}$ | Do. . . . | A. Vonwiller. |
| 26 $\frac{1}{4}$ | 9 | 6 $\frac{1}{4}$ | Do. . . . | G. F. Phillips. |
| 26 $\frac{1}{4}$ | 8 $\frac{1}{4}$ | 3 | Do. . . . | Major F. Wormald. |
| 26 | 8 $\frac{3}{4}$ | 7 $\frac{1}{4}$ | Do. . . . | Kenneth Crossley. |
| 26 | 8 $\frac{1}{2}$ | 7 $\frac{3}{4}$ | Do. . . . | Capt. Mackenzie Murray. |
| 25 $\frac{3}{4}$ | 9 | 5 | Do. . . . | W. A. Baird. |
| 25 $\frac{1}{2}$ | 9 | 6 $\frac{1}{2}$ | Do. . . . | N. Flower. |
| 25 $\frac{1}{2}$ | 8 $\frac{3}{4}$ | 9 | Do. . . . | W. H. Lindsay. |
| 25 $\frac{3}{8}$ | 9 $\frac{1}{2}$ | 12 | Do. . . . | E. M. Crosfield. |
| 25 $\frac{1}{4}$ | 8 $\frac{3}{4}$ | 10 | Do. . . . | Capt. H. C. S. Ashton. |
| 25 | 9 | 6 $\frac{1}{4}$ | Do. . . . | Lieut.-Col. J. H. Patterson. |
| 25 | 8 $\frac{3}{4}$ | 5 $\frac{1}{4}$ | Do. . . . | H. W. Nicolson. |
| 25 | 9 | 9 $\frac{3}{4}$ | Do. . . . | Capt. M. L. Pears. |
| ♀ 25 | 6 | 2 | Do. . . . | C. Bower Ismay. |

- Owner's measurements.



Skull and Horns of Gemsbuck. From Mr. F. H. Barber's specimen in American National Collection.

The GEMSBUCK (*Oryx gazella*).

Gemsbok, Cape Dutch.

Kukama, Bechuana.

Ko, Burman.

The long, straight, spear-like horns, of which even the lion fights shy, render the gemsbuck and its more immediate allies an easily recognised sub-group. And even when, as in the white oryx, the horns are scimitar-shaped, they differ from those of the sable antelope by starting in the plane of the face. It is also a noteworthy fact that in the present species the horns of the females are longer and finer, and therefore more prized, than those of the bulls. An adult gemsbuck stands about 4 feet at the shoulder. In addition to the length of its horns, the species is sufficiently characterised by the presence

of a tuft of dark hair on the throat, and the cutting-off of the white eye-stripe from the muzzle by the union of the dark central nose-streak with the black of the cheeks.

Distribution.—The desert regions of South-Western Africa, from the northern Karus of Cape Colony through the Kalahari and Damaraland to Southern Angola, in Mossamedes, and perhaps Benguela. North of the Chobi and eastwards of Khama's country the species appears to be unknown. About 1846 Gordon Cumming found gemsbuck abundant on the northern Karus of Cape Colony; and even now a few linger on the plains to the south of the lower reaches of the Orange River. In the northern Kalahari, where they exist for months without water, they are still abundant. The splendid horns of the gemsbuck are always regarded as prime trophies of the hunter's skill; the finding, riding-down, and shooting of one of these wary and enduring desert-bred antelopes being a feat of which any man, however well mounted, may be deservedly proud.

| Length on front. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|----------------------|---------------------|------------------|-----------------------|--|
| 47 $\frac{1}{2}$ | 6 $\frac{3}{4}$ | 17 $\frac{1}{2}$ | South Africa . . . | The late J. S. Jameson. |
| 46 | 7 | 25 $\frac{1}{2}$ | Do. . . . | W. A. Simpson Hinchliffe. |
| - ♀ 45 $\frac{1}{2}$ | ... | ... | Bechuanaland . . . | American National Collection. (See illustration.) |
| -45 $\frac{1}{2}$ | 7 $\frac{5}{8}$ | 19 | ? | Sir Edmund G. Loder, Bart. |
| ♀ 45 $\frac{1}{4}$ | 6 $\frac{1}{4}$ | 33 $\frac{3}{4}$ | Ngamiland . . . | Sir H. J. Goold-Adams. |
| -45 $\frac{1}{4}$ | ... | 23 $\frac{5}{8}$ | Do. . . . | H.R.H. the Duc de Montpensier. |
| 45 $\frac{1}{4}$ | 6 $\frac{3}{4}$ | 20 $\frac{3}{4}$ | Do. . . . | G. M. Bond. |
| 45 | 8 $\frac{1}{8}$ | 18 $\frac{1}{2}$ | Do. . . . | Hon. Walter Rothschild. |
| 45 | 7 | 26 | Do. . . . | R. H. Venables Kyrke. |
| -44 $\frac{1}{2}$ | 6 $\frac{1}{8}$ | 25 | ? | P. C. Keytel. |
| -44 | 6 $\frac{1}{2}$ | 17 | ? | A. Ohlsson. |
| 44 | 7 $\frac{1}{4}$ | 20 | S.W. Africa . . . | C. G. Carew Elers. |
| 43 $\frac{3}{8}$ | 6 $\frac{3}{8}$ | 18 $\frac{1}{2}$ | Nata Valley . . . | F. C. Selous. |
| 43 $\frac{1}{4}$ | 6 $\frac{5}{8}$ | 20 $\frac{3}{8}$ | ? | Sir Victor Brooke's Collection. |
| 43 $\frac{1}{4}$ | 6 $\frac{1}{2}$ | 18 $\frac{1}{2}$ | ? | British Museum. |
| -43 $\frac{1}{4}$ | 8 | 16 | ? | Col. J. J. Harrison. |
| 43 $\frac{3}{8}$ | 6 $\frac{3}{4}$ | 16 | Kalahari . . . | A. F. Williams. |
| 43 $\frac{1}{8}$ | 6 $\frac{7}{8}$ | 22 | Botletli Valley . . . | F. C. Selous. |
| 43 | 6 $\frac{1}{2}$ | 22 | ? | W. Y. Campbell. |

- Owner's measurements.

RECORDS OF BIG GAME

| Length on front. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|---------------------|---------------------|------------------|--------------------|----------------------|
| 42 $\frac{1}{2}$ | 7 | 20 $\frac{1}{2}$ | Bechuanaland . . . | A. Neilson. |
| 42 $\frac{3}{8}$ | 6 $\frac{1}{4}$ | 19 $\frac{1}{2}$ | Do. . . . | Capt. F. H. Lehmann. |
| -42 $\frac{1}{4}$ | 7 | 23 | Kalahari | H. A. Bryden. |
| 42 | 6 $\frac{1}{8}$ | 20 $\frac{3}{4}$ | ? | A. Ryley. |
| 41 $\frac{1}{2}$ | 7 | 21 $\frac{1}{4}$ | ? | Dr. S. Martin. |
| 41 $\frac{1}{2}$ | 7 $\frac{1}{2}$ | 18 $\frac{1}{2}$ | ? | R. T. Coryndon. |

- Owner's measurements.



Head of Beisa.

The BEISA (*Oryx beisa*).*Beida*, Somali. *Sala*, Danakil.

The beisa may be regarded as the north-eastern representative of the gemsbuck, from which it is distinguished at a glance not only by the absence of a fringe of hair on the throat, but also by the separation of the black nose-stripe from the eye-stripes. There is also no black on the haunches or thighs, and the horns are considerably shorter and less divergent. Height at shoulder reaching 4 feet or rather more. Weight about 450 lbs.

Distribution.—North-East Africa, from Suakin through Abyssinia to Berbera in Somaliland, and south to the Tana River. The Galla beisa, on account of its darker colouring, is separated as *O. b. gallarum*; the Kilimanjaro race, *O. b. callotis*, is characterised by its tufted ears; and intermediate between this and the typical race is *O. b. annectans* of the Laikipia plateau.

A.—TYPICAL RACE (*O. beisa typica*).

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|----------------|-------------|------------------------|-------------------|
| ♀ 39 | 5½ | 8 | Hargeisa, Somaliland . | E. P. Hare. |
| 38 | 7 | 10 | East Africa . . . | Capt. F. H. Span. |

| Length on front curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|---------------------------|---------------------|------------------|--------------------|-------------------------------------|
| 38 | 5 | 13 | Abyssinia . . . | N. C. Cockburn. |
| 37 $\frac{3}{4}$ | 6 $\frac{3}{8}$ | 8 | East Africa . . . | Capt. W. M. Burrell. |
| 37 $\frac{1}{4}$ | 7 | 11 $\frac{1}{4}$ | Somaliland . . . | G. D. E. Chapman. |
| 36 $\frac{3}{4}$ | 7 $\frac{1}{4}$ | 12 $\frac{1}{4}$ | Do. . . . | A. E. Butter. |
| 36 $\frac{1}{2}$ | 6 | 10 | East Africa . . . | Rhys Williams. |
| 36 $\frac{3}{8}$ | 6 $\frac{1}{4}$ | 7 $\frac{3}{8}$ | Somaliland . . . | G. J. A. Troyte. |
| 36 $\frac{1}{4}$ | 6 $\frac{1}{2}$ | 8 $\frac{1}{2}$ | Gallaland . . . | M. V. Hay. |
| 36 | 6 $\frac{1}{2}$ | 10 $\frac{1}{2}$ | Somaliland . . . | Capt. J. T. Brinkley. |
| 36 | 6 | 8 | Do. . . . | Count J. Potocki. |
| 36 | 7 $\frac{1}{2}$ | 8 | E. Africa . . . | G. G. Longden. |
| 36 | 6 $\frac{3}{4}$ | 10 | Do. . . . | J. L. Baird. |
| 35 $\frac{7}{8}$ | 5 $\frac{1}{4}$ | 9 $\frac{7}{8}$ | Do. . . . | G. F. Archer. |
| 35 $\frac{3}{4}$ | 6 $\frac{3}{4}$ | 9 $\frac{3}{8}$ | Somaliland . . . | Lord Delamere. |
| ♀ 35 $\frac{3}{4}$ | 6 $\frac{1}{2}$ | 9 $\frac{1}{2}$ | East Africa . . . | British Museum. |
| ♀ 35 $\frac{3}{4}$ | 5 $\frac{3}{4}$ | 9 $\frac{1}{2}$ | Do. . . . | Capt. G. H. Riddell. |
| 35 $\frac{3}{4}$ | 5 $\frac{1}{4}$ | 8 $\frac{3}{4}$ | Somaliland . . . | Sir Edmund Loder, Bart. |
| 35 $\frac{5}{8}$ | 7 | 10 | East Africa . . . | J. E. R. Oldfield. |
| ♀ 35 $\frac{1}{2}$ | 6 | 11 | Do. . . . | W. F. Whitehouse. |
| ♀ 35 $\frac{1}{2}$ | 5 $\frac{1}{4}$ | 7 | Do. . . . | Maj.-Gen. A. M. Rochfort. |
| - ♀ 35 $\frac{1}{2}$ | 5 | 9 $\frac{1}{4}$ | Do. . . . | F. Gillett. |
| 35 $\frac{1}{2}$ | 6 $\frac{1}{2}$ | 8 $\frac{3}{4}$ | Somaliland . . . | Prince Nicolas Ghika. |
| 35 $\frac{1}{4}$ | 6 $\frac{1}{2}$ | 9 $\frac{1}{2}$ | East Africa . . . | R. Fenwick-Owen. |
| 35 | 6 | 7 $\frac{1}{4}$ | Do. . . . | W. N. McMillan. |
| 35 | 6 | 9 | Somaliland . . . | Lieut.-Gen. Sir Arthur Paget. |
| 35 | 5 $\frac{3}{8}$ | 9 $\frac{3}{4}$ | S. Abyssinia . . . | T. Morse. |
| 35 | 5 $\frac{5}{8}$ | 7 $\frac{3}{8}$ | Somaliland . . . | A. S. Trevor. |
| ♀ 34 $\frac{3}{4}$ | 4 $\frac{5}{8}$ | 13 $\frac{1}{2}$ | Abyssinia . . . | Major P. H. G. Powell-Cotton. |
| ♀ 34 $\frac{3}{4}$ | 5 $\frac{1}{2}$ | 8 $\frac{1}{2}$ | Somaliland . . . | G. M. Norrie. |
| 34 $\frac{3}{4}$ | 6 $\frac{1}{2}$ | 8 | Tana Valley . . . | Capt. C. Hankey. |
| ♀ 34 $\frac{1}{2}$ | 6 | 10 $\frac{1}{2}$ | Somaliland . . . | Lieut.-Col. J. McCall Maxwell. |
| 34 $\frac{1}{2}$ | 6 $\frac{3}{4}$ | 8 $\frac{3}{4}$ | Do. . . . | Alex. R. Alston. |
| 34 $\frac{1}{2}$ | 7 | 6 | Do. . . . | F. G. Barclay. |
| ♀ 34 $\frac{1}{2}$ | 5 $\frac{3}{4}$ | 8 $\frac{3}{4}$ | Do. . . . | R. M'D. Hawker. |
| 34 $\frac{1}{2}$ | 6 $\frac{3}{4}$ | 9 $\frac{1}{4}$ | East Africa . . . | Earl of Warwick. |
| 34 $\frac{1}{2}$ | 6 $\frac{1}{2}$ | 10 | Do. . . . | A. J. A. Douglas. |
| ♀ 34 $\frac{1}{2}$ | 5 $\frac{1}{8}$ | 13 | Somaliland . . . | T. W. H. Clarke. |
| 34 $\frac{1}{2}$ | 6 $\frac{3}{4}$ | 8 $\frac{1}{2}$ | Do. . . . | E. Lee Townshend. |
| 34 $\frac{1}{2}$ | 7 | 7 $\frac{1}{2}$ | Do. . . . | R. E. Drake-Brockman. |
| 34 $\frac{1}{2}$ | 5 $\frac{1}{4}$ | 8 | Do. . . . | The late Sir H. D. Tichborne, Bart. |
| ♀ 34 $\frac{3}{8}$ | 6 | 9 $\frac{1}{4}$ | East Africa . . . | Hon. Mrs. Blyth. |

- Owner's measurements.



Head of Fringe-eared Beisa.

B.—KILIMANJARO or FRINGE-EARED RACE (*O. beisa callotis*).

Distinguished from the typical beisa by the fringe of long hairs surmounting the ears, by the extension of the eye-stripe to the lower jaw, along which it generally runs to join the throat-stripe, by the absence of any black on the front of the legs below the knees, and by the rich fawn of the ground-colour of the upper part of the face. Height at shoulder, 48 inches.

| Length on front. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------|----------------|-------------|-----------------------|-------------------------|
| 33½ | 7 | 13 | Makindu . . . | R. B. P. Cator. |
| - ♀ 33¼ | 5¾ | 14½ | Kilimanjaro . . . | Capt. F. A. Dickinson. |
| 33¼ | 7¼ | 11½ | Near Lake Nalaron . . | Capt. Mackenzie Murray. |
| 33 | 7 | 9½ | Kilimanjaro . . . | G. G. Longden. |
| 32¾ | 6⅝ | 11¾ | ? | A. Fowler. |
| - 32¼ | 6 | 12¼ | Kilimanjaro . . . | Capt. F. A. Dickinson. |
| 31¾ | 6½ | 8¾ | ? | H. Fowler. |
| 31½ | 7⅝ | 9¾ | East Africa . . . | W. H. Levy. |
| 31 | 6 | 10 | Do. . . . | W. M. Greiss. |
| 30⅝ | 6½ | 9½ | Do. . . . | G. de P. Colville. |
| 30½ | 5¾ | 10½ | Do. . . . | F. J. Jackson. |
| 30¼ | ... | 6 | Sabaki District . . . | Capt. T. W. Greenfield. |
| 29½ | 6 | 12¾ | East Africa . . . | Sutton Timmis. |
| 29½ | 6⅞ | 10 | Do. . . . | H. G. Watson. |

- Owner's measurements.

| Length on front. | Circumference. | Tip to Tip. | Locality. | Owner. |
|--------------------|-----------------|------------------|-------------------|-----------------------------|
| 29 $\frac{1}{2}$ | 5 $\frac{5}{8}$ | 7 $\frac{3}{8}$ | East Africa . . . | Sir Robert Harvey, Bart. |
| 29 $\frac{3}{4}$ | 7 $\frac{1}{2}$ | 9 $\frac{1}{2}$ | Do. . . . | Capt. R. H. R. Brocklebank. |
| 29 | 6 | 11 | Do. . . . | E. H. Lichfield. |
| 29 | 5 $\frac{1}{4}$ | 11 $\frac{1}{2}$ | Do. . . . | Sir Edmund G. Loder, Bart. |
| 29 | 6 $\frac{5}{8}$ | 13 $\frac{3}{8}$ | Do. . . . | Lord Wodehouse. |
| 29 | 5 $\frac{3}{4}$ | 11 | Do. . . . | H. Sampson. |
| 28 $\frac{3}{4}$ | 5 $\frac{5}{8}$ | 6 | Do. . . . | H. C. V. Hunter. |
| ♀ 28 $\frac{5}{8}$ | 4 $\frac{3}{4}$ | 12 $\frac{1}{4}$ | Do. . . . | Henry Charrington. |
| 28 $\frac{1}{4}$ | 6 $\frac{1}{2}$ | 10 | Do. . . . | T. D. M. Cardeza. |
| 28 $\frac{1}{4}$ | 6 $\frac{1}{8}$ | 8 | Do. . . . | E. H. Sinkinson. |
| 28 | 5 $\frac{1}{2}$ | 12 $\frac{1}{4}$ | Do. . . . | T. Brooke. |
| ♀ 27 $\frac{1}{4}$ | 5 $\frac{3}{4}$ | 10 $\frac{1}{4}$ | Kilimanjaro . . . | Capt. Lord J. S. Cavendish. |
| 27 $\frac{1}{4}$ | 7 $\frac{1}{2}$ | 9 $\frac{1}{2}$ | Masailand . . . | W. Neilson. |
| 27 $\frac{1}{4}$ | 5 $\frac{3}{4}$ | 12 $\frac{1}{4}$ | Do. . . . | B. Dominick. |
| 27 $\frac{1}{8}$ | 7 | 8 | Do. . . . | A. H. Wheeler. |
| 27 $\frac{1}{8}$ | 6 $\frac{7}{8}$ | 10 $\frac{1}{2}$ | Do. . . . | C. Craig. |



Head of Arabian Oryx. Shot by Mr. D. Carruthers.

The ARABIAN ORYX (*Oryx beatrix*).

This oryx is a smaller animal than the beisa, measuring about 2 feet 8 inches at the shoulder, and is of a whitish colour, with a dark spot on the face, and a large dark patch on each cheek, which meets its fellow beneath the throat; the knees and the front of the lower portion of the legs being blackish brown, and the tail-tuft black. The horns are slightly curved.

Distribution.—The interior of Arabia, especially the Nejd district and the confines of the great desert east of Oman.

| Length on front. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------|-----------------|------------------|------------------------|------------------------------------|
| 27 $\frac{1}{4}$ | 4 $\frac{1}{4}$ | 12 $\frac{1}{2}$ | Tebuk . . . | D. Carruthers. |
| 26 $\frac{1}{2}$ | 4 $\frac{3}{4}$ | 10 $\frac{1}{4}$ | Arabia . . . | Paris Museum. |
| 23 $\frac{3}{4}$ | 5 | 9 $\frac{1}{4}$ | Do. . . . | Sir Edmund G. Loder, Bart. |
| 22 | 4 | 10 | Do. . . . | British Museum (P. B. Vander Byl). |
| ♀ 15 | 3 $\frac{3}{8}$ | 4 $\frac{1}{2}$ | Head of Persian Gulf . | Do. (B. T. Finch). |

— Owner's measurements.



Head of White Oryx.

The WHITE ORYX (*Oryx leucoryx*).*Abū harb*, Sudani.

A very distinct species of the genus, agreeing approximately in size with the beisa, but with long recurving scimitar-shaped horns and a generally whitish colouring, showing a more or less distinct chestnut tinge. The chestnut is developed on the neck, shoulders, under-parts, upper portions of the limbs, and the face; the last corresponding very closely with the dark markings of the beisa in their arrangement.

It has been proposed to transfer the name *O. leucoryx* to the preceding species, and to term the present one *O. algazael*.

Distribution.—North-Western Central Africa, from Nigeria to Sennar, Kordofan, and parts of Nubia and the Sudan generally.

| Length on front. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|---------------------|---------------------|------------------|------------------|--------------------------|
| 45 | 6 $\frac{1}{4}$ | 8 $\frac{1}{2}$ | Kordofan . . . | G. Blaine. |
| 44 $\frac{1}{2}$ | 6 $\frac{3}{8}$ | 9 | Do. . . . | Major H. G. F. Stallard. |
| 43 $\frac{5}{8}$ | 6 $\frac{1}{2}$ | 10 $\frac{1}{2}$ | Do. . . . | Major H. H. S. Morant. |
| ♀ 43 $\frac{1}{4}$ | 4 $\frac{7}{8}$ | 12 $\frac{3}{4}$ | Do. . . . | Norman B. Smith. |
| ♀ 43 | 5 $\frac{1}{4}$ | .. | Gold Coast . . . | P. J. Partridge. |

| Length on front. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|-------------------------------|---------------------|------------------|----------------------------------|------------------------------------|
| 43 | ... | 15 | Kordofan . . . | Major A. J. B. Percival. |
| 42 $\frac{3}{4}$ | 6 $\frac{1}{4}$ | 9 | Do. . . . | Hon. Walter Rothschild. |
| 42 | 7 $\frac{1}{8}$ | ... | Northern Territories, Gold Coast | Capt. H. Read. |
| ¹ 42 | 5 | ... | Nigeria | Capt. W. D. Wright. |
| ¹ 41 $\frac{7}{8}$ | 6 $\frac{1}{8}$ | ... | Lake Chad | E. B. Macnaughten. |
| 41 $\frac{3}{4}$ | 5 | 16 $\frac{1}{2}$ | Kordofan | Walter Jones. |
| 41 $\frac{5}{8}$ | 6 | 10 $\frac{1}{2}$ | Do. | E. N. Buxton. |
| 40 $\frac{1}{2}$ | 5 $\frac{3}{4}$ | 6 $\frac{1}{4}$ | Do. | Capt. J. C. Graham. |
| 40 $\frac{1}{2}$ | 6 $\frac{5}{8}$ | 8 $\frac{1}{4}$ | Do. | Sir Robert Harvey, Bart. |
| ♀ 40 $\frac{1}{2}$ | 5 $\frac{1}{4}$ | 15 $\frac{1}{2}$ | Do. | Do. |
| 39 $\frac{3}{4}$ | 5 $\frac{1}{2}$ | 14 $\frac{1}{4}$ | Do. | Prince Henry of Liechtenstein. |
| 39 $\frac{3}{4}$ | 6 $\frac{1}{4}$ | 4 $\frac{1}{2}$ | Do. | British Museum (Major H. N. Dunn). |
| ♀ 39 $\frac{1}{4}$ | 5 $\frac{1}{4}$ | 6 $\frac{1}{4}$ | Do. | Capt. G. S. Cameron. |
| 39 $\frac{1}{4}$ | 6 $\frac{1}{2}$ | 3 $\frac{1}{2}$ | Do. | C. E. Lyall. |
| 39 $\frac{1}{4}$ | 5 $\frac{5}{8}$ | 11 $\frac{3}{4}$ | Do. | Maj.-Gen. B. T. Mahon. |
| ¹ 39 | 5 $\frac{1}{4}$ | ... | N. of Sokoto | Brig.-Gen. P. S. Wilkinson. |

- Owner's measurements.

¹ Single horn.



Head of Addax.

The ADDAX (*Addax nasomaculatus*).

Kūbbāji, Arabic.

This antelope is another member of the oryx group, but is referred to a genus apart, of which it is the sole representative. Its most distinctive features are the spirally twisted and closely ringed horns (which recall those of the lesser kudu). The general colour in summer is sandy above and whitish below, with a brown patch on the forehead. In winter, at any rate in the case of the typical Tunisian race, the coat is grey and a heavy mass of long brown hair developed on the neck, shoulders, and forehead, although a streak across the face below the eyes, the lips, and a spot on the outer surface of each ear are white. Hoofs very wide and shallow, almost like those of the reindeer. Height at shoulder about 3 feet 6 inches.

Distribution.—North Africa, as far south as lat. $7^{\circ} 15' N.$ in the Egyptian Sudan.

| Length. | | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|--------------------|-------------------|---------------------|------------------|---------------------|--|
| On front curve. | Straight line. | | | | |
| 39 $\frac{5}{16}$ | 34 $\frac{1}{2}$ | 5 $\frac{7}{8}$ | 18 $\frac{3}{4}$ | ? | Sir Edmund G. Loder, Bart. |
| ♀ 39 $\frac{1}{2}$ | 32 $\frac{5}{8}$ | 4 $\frac{1}{4}$ | 24 | Sudan . . . | H. Hodgson. |
| 39 | 33 | 6 | 20 $\frac{1}{2}$ | ? | Carl Hagenbeck. |
| 38 $\frac{1}{2}$ | 30 $\frac{1}{2}$ | 6 $\frac{1}{2}$ | 12 $\frac{1}{2}$ | South Tunisia . . | British Museum (J. I. S. Whitaker). |
| 37 $\frac{3}{4}$ | 31 $\frac{3}{4}$ | 5 $\frac{3}{4}$ | 23 $\frac{1}{2}$ | Sahara . . . | W. Barry. |
| 37 $\frac{1}{4}$ | 31 | 6 $\frac{1}{4}$ | 28 $\frac{1}{2}$ | Sudan . . . | H. Hodgson. |
| 36 $\frac{5}{8}$ | 29 $\frac{1}{4}$ | 6 $\frac{1}{2}$ | 13 | | |
| 36 $\frac{1}{2}$ | 31 $\frac{1}{2}$ | 6 | 19 $\frac{3}{4}$ | South Tunisia . . | American National Collection. |
| 36 | 30 $\frac{1}{4}$ | 6 $\frac{1}{4}$ | 18 $\frac{3}{8}$ | Dongola . . . | G. Blaine. |
| 36 | 28 $\frac{3}{4}$ | 6 $\frac{3}{4}$ | 12 | S.W. Dongola . . | Major A. J. B. Percival. |
| 35 $\frac{3}{4}$ | 28 | 6 $\frac{3}{8}$ | 13 $\frac{5}{8}$ | North Africa . . | Hon. Walter Rothschild. |
| ♀ 34 $\frac{3}{4}$ | 28 | 4 $\frac{3}{4}$ | 7 $\frac{1}{2}$ | Do. . . | Do. |
| 34 $\frac{1}{4}$ | 29 | 6 $\frac{1}{4}$ | 20 $\frac{1}{2}$ | W. of Dongola . . | Earl of Kingston. |
| 34 | 29 $\frac{1}{2}$ | 5 $\frac{3}{4}$ | 14 $\frac{3}{4}$ | Do. . . | Mr. Justice Hopley. |
| 34 | 29 | 6 $\frac{3}{8}$ | 10 $\frac{1}{4}$ | Do. . . | Abe Bailey. |
| 33 $\frac{1}{2}$ | 26 | 5 $\frac{1}{2}$ | 12 $\frac{1}{4}$ | Do. . . | Hon. R. A. Ward. |
| 32 $\frac{3}{4}$ | 27 $\frac{1}{4}$ | 6 $\frac{1}{4}$ | 14 | Do. . . | Sir Robert Harvey, Bart. |
| 32 $\frac{5}{8}$ | 27 $\frac{1}{2}$ | 6 $\frac{3}{4}$ | 18 | S.W. of Dongola . . | Capt. P. E. Vaughan. |
| 32 $\frac{1}{4}$ | 27 $\frac{1}{8}$ | 6 $\frac{1}{2}$ | 17 | Algiers . . . | A. F. Williams. |
| 31 $\frac{1}{2}$ | 26 | 5 $\frac{3}{4}$ | 12 $\frac{1}{4}$ | Do. . . | Major R. Rankin. |



Head of Four-horned Antelope.

The FOUR-HORNED ANTELOPE or CHOUSINGHA
(*Tetraceros quadricornis*).

This antelope, which was formerly classed with the African duikers, is now regarded as a relative of the nilgai. Typically there are two pairs of horns, and the face-glands form deep slits; the females being hornless. The upper molar teeth have low, squared crowns. Height at shoulder about 25 inches, and weight about 40 lbs. General colour dull rufous brown, becoming whitish beneath, with the muzzle, the outer surface of the ears, and a line down the front of each leg blackish brown, and some white on the outer side of the pasterns. The front horns are not unfrequently mere knobs, and may even be wanting, as in most Madras and Kathiawar specimens.

Distribution.—Peninsular India south of the Himalaya.

| Length of horns on front. | | Circumference. | | Tip to Tip. | | Locality. | Owner. |
|------------------------------|-------|----------------|-------|-------------|-------|------------------------------|---|
| Rear. | Fore. | Rear. | Fore. | Rear. | Fore. | | |
| -5 | ... | ... | ... | ... | ... | Jhalawar . . | H.H. Maharaj Rana Bahadur of Jhalawar. |
| 4½ | 2¾ | 2½ | 2¼ | 3 | ... | ? | G. Masters. |
| -4½ | 2½ | 2¼ | 1¾ | 2½ | 1 | Lulitpur . . | General Walker. |
| 4½ | 2¼ | 2¾ | 2¼ | 3 | ... | ? | Major J. C. B. Statham. |
| 4¾ | 2½ | 2¼ | 2¾ | 1½ | 2¾ | ? | Sir Edmund G. Loder, Bart. |
| -4½ | 1½ | ... | ... | ... | ... | ? | J. D. Inverarity. |
| 4 | 2½ | 1¾ | 1¾ | 3 | 1½ | Indore . . | British Museum (Col. J. Evans). |
| 4 | 2 | 3 | 1¾ | 1¾ | 2½ | Karkote Jungle, near Mhow | Col. G. D. F. Sullivan. |
| 4 | 2½ | 2 | 1¾ | 1½ | ... | ? | C. Cunningham. |
| -4 | 1¾ | 2½ | 2¼ | 2¾ | ... | Central Provinces | Capt. R. D. Gardner. |
| -3¾ | 1¾ | 1¾ | 1¾ | 2¾ | ... | Do. | Lieut.-Col. R. W. Mapleton. |

— Owner's measurements.



Head of Nilgai.

The NILGAI or BLUE BULL (*Boselaphus tragocamelus*).

This ungainly and small-horned antelope is an Asiatic representative of a group whose other members, apart from the chousingha, are African. Most are large, and, with the exception of the elands and bongo, lack horns in the females. In the males the horns are angulated in front and generally spirally twisted, but in no case ridged. There are small face-glands, the muzzle is naked, and the tail is long and tufted. Except in the nilgai, the upper cheek-teeth have short and broad crowns.

From the other members of the group the nilgai is readily distinguished by its short, upright horns, which, although angulated in front, show no distinct spiral twist. With a long and pointed head, this antelope has the fore-legs considerably longer than the hind pair; and it is chiefly to this peculiarity that its ungainly appearance is due. Both sexes have a mane on the neck, but the bulls alone possess a tuft of long hair on the middle of the throat. The general colour of the adult bull is dark grey, tinged with blue or brown; but the mane and tufts of long hair are black, and streaks and patches on the face, ears, and throat, as well as the under-parts, the lower surface of the tail, a streak down the buttocks, and a ring above and below

each fetlock, are white. Height at shoulder from 4 feet 4 inches to 4 feet 8 inches. Mr. A. O. Hume shot a specimen in the Aligurh district in 1855 in which the horns measured $11\frac{3}{4}$ along the front curve, with a circumference of $9\frac{1}{2}$. They were unfortunately destroyed in the Mutiny.

Distribution.—The peninsula of India, from the foot of the Himalaya to the south of Mysore; common in parts of the Eastern Punjab, the United Provinces, Guzerat, and the Central Provinces.

| Length on front. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------|----------------|----------------|------------------------|-------------------------------|
| 10 | $9\frac{1}{2}$ | 5 | Agra | J. W. Pickthall. |
| $9\frac{1}{2}$ | $9\frac{3}{4}$ | $5\frac{1}{2}$ | ? | Sir Edmund G. Loder, Bart. |
| $9\frac{1}{2}$ | $6\frac{1}{2}$ | 6 | ? | Major G. F. Mockler. |
| $9\frac{1}{2}$ | $7\frac{1}{2}$ | $6\frac{1}{4}$ | ? | J. Whitaker. |
| $-9\frac{1}{2}$ | $8\frac{1}{2}$ | 7 | ? | Capt. R. D. Gardner. |
| $-9\frac{1}{2}$ | $8\frac{1}{2}$ | ... | Bhurtpur | Major E. R. Gordon. |
| $9\frac{3}{8}$ | $8\frac{3}{4}$ | $5\frac{5}{8}$ | Nepal Terai | J. L. Sleeman. |
| $9\frac{1}{4}$ | $6\frac{3}{4}$ | $4\frac{7}{8}$ | ? | British Museum. |
| $9\frac{1}{4}$ | $7\frac{3}{4}$ | $7\frac{3}{4}$ | ? | Capt. G. W. Hemans. |
| 9 | $6\frac{5}{8}$ | $3\frac{1}{2}$ | ? | A. O. Hume. |
| -9 | 7 | 7 | Muttra | Capt. S. H. Charrington. |
| $8\frac{7}{8}$ | $6\frac{1}{2}$ | $5\frac{1}{4}$ | Central Provinces . . | C. D. Twopeny. |
| $8\frac{3}{4}$ | $6\frac{1}{4}$ | $5\frac{3}{4}$ | Bhurtpur | Lieut.-Col. J. M. Fawcett. |
| $-8\frac{3}{4}$ | ... | ... | Jumna Valley | Indian Museum. |
| $-8\frac{3}{4}$ | 7 | ... | United Provinces . . | C. Rose. |
| $-8\frac{5}{8}$ | ... | 5 | Oudh | Mess 3rd Gurka Rifles. |
| $8\frac{1}{2}$ | $7\frac{1}{2}$ | $4\frac{3}{4}$ | Central Provinces . . | Capt. E. H. R. Hibbert. |
| $8\frac{1}{2}$ | 8 | $5\frac{1}{4}$ | Do. . . . | Major C. D. White. |
| $8\frac{1}{4}$ | $6\frac{1}{2}$ | 8 | Do. . . . | F. L. Brayne. |
| $8\frac{1}{4}$ | ... | ... | Kathiawar | Lieut.-Col. L. L. Fenton. |
| $8\frac{1}{4}$ | ... | ... | Kota | H.H. the Maharaja of Bikanir. |
| 8 | $6\frac{3}{4}$ | $6\frac{1}{4}$ | Nimar, Cent. Prov. . . | Lieut.-Col. H. Wade-Dalton. |
| 8 | $6\frac{1}{2}$ | $7\frac{1}{4}$ | ? | P. Niedieck. |
| 8 | $6\frac{1}{2}$ | 5 | Terai | Major E. B. Cook. |

- Owner's measurements.



Skull and Horns of Bushbuck in the Collection of the Hon. Walter Rothschild.

The BUSHBUCK (*Tragelaphus scriptus*).

| | |
|--|---|
| <i>Assali</i> , Danakil. | <i>M'babala</i> and <i>Serolo buchulu</i> , |
| <i>Bata</i> , M'Kua. | Ngami. |
| <i>Chirwalawala</i> , Chilala and Chibisa. | <i>Mbarwara</i> , Swahili. |
| <i>Boschbok</i> , Cape Dutch. | <i>Mazo</i> and <i>Bülümgi</i> , Hausa. |
| <i>Ibarwara</i> , Lower Zambesi. | <i>Ngabi</i> , Waganda. |
| <i>Imbabala</i> , Swazi and Matonga. | <i>Scrolobutuku</i> , Bamangwato. |
| <i>Inkonka</i> (male), <i>Imbabala</i> (female), | <i>Ungurungu</i> , Makuba. |
| Zulus. | <i>Dol</i> , Somali. |
| <i>M'babala</i> , Barotsi. | <i>Decula</i> , Abyssinian. |
| | <i>Shichibange</i> , Chila. |

The bushbucks, or harnessed antelopes, form an extensive group of species nearly allied to the kudus, but usually displaying great sexual differences in the colour of the coat, and generally having a simpler spiral to the horns. The does are nearly always striped with white on a chestnut ground, but the bucks may be darker and more uniformly coloured. As in the kudus, the females are hornless. The true bushbuck is the smallest and at the same time the most widely spread member of the group, having many local races. The height at the shoulder ranges from $2\frac{1}{2}$ to 3 feet, and the weight from 100 lbs. to 170 lbs. Bucks have a crest of long hair, which may be white and

erectile along the middle of the back ; while in many, and especially the southern races, there is a collar round the neck on which the hair is quite short. In the Abyssinian race (*T. scriptus decula*), which ranges into the dense forests bordering the Webbe River in Somaliland, and is locally known as *dol*, the build is low and stout, and the general colour yellowish, the light stripes being nearly obsolete. The Nile *T. scriptus bor* is allied. In the West African race (*T. scriptus typicus*), from West, Central, and South-Central Africa, the ground-colour is bright rufous, and the spots and stripes are very conspicuous. In the Limpopo *T. s. roualeyni* the bucks are dark brown, with only faint indications of white markings, but in the Cape *T. s. sylvaticus* the colour is dark brown without transverse white stripes, and the spots are reduced to a few indistinct ones on the haunches and behind the shoulder. The Arusi *T. s. meneliki* is nearly black. Other races have been named.

In the southern districts of Cape Colony bushbuck are still to be found in abundance, even in the neighbourhood of large towns like Port Elizabeth. Recourse is, however, had to preserving for the greater part of the year, by which means the well-known Easter Hunts, when driving is practised and large bags are made, are still kept up. In more inland districts either the does or both sexes are periodically protected. A wounded bushbuck often makes a dangerous charge.

Most of the following belong to the Cape *T. s. sylvaticus*, although those from the Limpopo represent *T. s. roualeyni* :—

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|-----------------|------------------|--------------------------|---|
| 19 $\frac{3}{4}$ | 6 $\frac{1}{4}$ | 4 $\frac{1}{2}$ | Upper Shiré Valley . . . | Hon. Walter Rothschild. (See illustration.) |
| 19 $\frac{3}{4}$ | 6 $\frac{1}{2}$ | 8 $\frac{3}{4}$ | N.E. Rhodesia . . . | H. S. Thornicroft. |
| 19 $\frac{1}{2}$ | 6 $\frac{1}{4}$ | 7 $\frac{1}{4}$ | Natal | C. S. Mann. |
| 19 $\frac{7}{16}$ | 5 $\frac{3}{4}$ | 11 | Lower Zambesia . . . | Fleet-Surgeon W. H. S. Stalkartt, R.N. |
| 19 | 5 $\frac{5}{8}$ | 3 $\frac{3}{4}$ | B.C. Africa | Dr. J. E. S. Old. |
| 18 $\frac{3}{4}$ | 6 | 10 $\frac{3}{4}$ | ? | Sir Edmund G. Loder, Bart. |
| 18 $\frac{1}{2}$ | 6 | 8 $\frac{5}{8}$ | Pungwe | P. H. Illingworth. |
| 18 $\frac{1}{4}$ | 5 $\frac{1}{2}$ | 8 $\frac{7}{8}$ | B.C. Africa | J. Sealy Bell. |
| 18 $\frac{1}{4}$ | 6 $\frac{1}{4}$ | 7 $\frac{1}{4}$ | E. Transvaal | Major J. Stevenson-Hamilton. |
| 18 $\frac{1}{4}$ | 6 $\frac{1}{4}$ | 7 | N.W. Rhodesia | G. de P. Colville. |
| 17 $\frac{3}{4}$ | 5 $\frac{1}{2}$ | 4 $\frac{3}{4}$ | Zululand | Abe Bailey. |
| 17 $\frac{1}{2}$ | 6 $\frac{1}{2}$ | 7 $\frac{5}{8}$ | Zomba, B.C.A. | D. MacAlpine. |
| 17 $\frac{1}{2}$ | 5 $\frac{1}{2}$ | 10 $\frac{3}{4}$ | Limpopo Valley | Grahamstown Museum. |
| 17 $\frac{1}{4}$ | 6 | 5 $\frac{1}{4}$ | N.E. Gazaland | A. M. Naylor. |

— Owner's measurements.

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|-----------------|-----------------|---------------------------|----------------------------|
| 17 $\frac{1}{4}$ | 7 | 7 $\frac{3}{8}$ | Near Port Shepstone . . . | Capt. E. H. E. Abadie. |
| 17 $\frac{1}{4}$ | 6 $\frac{3}{4}$ | 7 $\frac{1}{4}$ | S. E. Africa . . . | H. Miller. |
| 17 $\frac{1}{8}$ | 7 $\frac{1}{2}$ | 5 $\frac{1}{2}$ | ? | British Museum. |
| 17 | 5 $\frac{1}{2}$ | 8 $\frac{1}{8}$ | Mount Zomba, B. C. A. . . | C. C. Bowring. |
| 16 $\frac{1}{2}$ | 5 $\frac{3}{4}$ | 7 $\frac{3}{8}$ | B. C. Africa . . . | R. H. Storey. |
| 16 $\frac{1}{2}$ | 5 $\frac{3}{4}$ | 9 | N. W. Rhodesia . . . | R. C. Forster. |
| 16 $\frac{1}{4}$ | 5 $\frac{3}{4}$ | 7 $\frac{3}{4}$ | Pungwe . . . | Major G. T. M. Bridges. |
| 16 $\frac{1}{4}$ | 6 | 7 | N. W. Rhodesia . . . | R. E. Critchley-Salmonson. |
| 16 | 6 $\frac{1}{4}$ | 7 $\frac{1}{4}$ | Do. . . | Capt. Sir K. Fraser, Bart. |
| 16 | 5 $\frac{1}{2}$ | 4 $\frac{1}{2}$ | Do. . . | W. H. Tapp. |
| 13 | 5 $\frac{1}{2}$ | 7 | Benguela . . . | G. W. Penrice. |

The following belong to the West African *T. s. typicus* :—

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|-----------------|-----------------|--------------------|--------------------------------------|
| 12 $\frac{1}{4}$ | 5 $\frac{1}{4}$ | 2 $\frac{7}{8}$ | Nigeria . . . | Capt. H. T. G. Moore. |
| 12 $\frac{1}{4}$ | 5 | 5 | Do. . . | Major J. A. Burdon. |
| 12 $\frac{1}{4}$ | 5 | 5 | Do. . . | Capt. G. C. Kelly. |
| 12 | 4 $\frac{1}{2}$ | 4 $\frac{1}{2}$ | Do. . . | Capt. W. H. Wilkin. |
| 12 | 5 | 6 $\frac{3}{8}$ | Do. . . | Brig.-Gen. P. S. Wilkinson. |
| 11 $\frac{1}{4}$ | 5 | 4 $\frac{3}{4}$ | Do. . . | N. F. Baynes. |
| 11 | 5 | 4 $\frac{3}{4}$ | Sierra Leone . . . | R. H. Gill. |
| 10 $\frac{1}{2}$ | 5 | 4 $\frac{1}{2}$ | Nigeria . . . | A. K. O'Brien. |
| 10 $\frac{1}{2}$ | 4 $\frac{1}{2}$ | 2 $\frac{1}{4}$ | Gambia . . . | British Museum (13th Earl of Derby). |
| 10 $\frac{1}{4}$ | 5 | 4 $\frac{3}{4}$ | Nigeria . . . | Capt. C. C. West. |
| 9 $\frac{7}{8}$ | 4 $\frac{1}{2}$ | 2 $\frac{3}{8}$ | Do. . . | A. H. Hobbs. |

The following belong to the Masai *T. s. masaius* :—

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|-----------------|-----------------|-------------------|-------------------|
| 18 $\frac{5}{8}$ | 7 $\frac{3}{8}$ | 6 $\frac{3}{4}$ | Unyoro . . . | F. A. Knowles. |
| 18 $\frac{1}{2}$ | 5 $\frac{1}{2}$ | 8 $\frac{1}{2}$ | East Africa . . . | Abe Bailey. |
| 17 $\frac{7}{8}$ | 6 $\frac{1}{4}$ | 5 $\frac{7}{8}$ | Do. . . | Sir John Kirk. |
| 17 $\frac{1}{4}$ | 6 $\frac{1}{2}$ | 6 $\frac{3}{4}$ | Do. . . | R. J. Church. |
| 17 | 7 $\frac{1}{8}$ | 7 $\frac{1}{2}$ | Do. . . | J. Hall. |
| 17 | 7 | 8 | Uganda . . . | H. Twyford. |
| 16 $\frac{3}{4}$ | 6 | 7 | Do. . . | T. D. M. Cardeza. |

— Owner's measurements.

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|-----------------|-----------------|------------------------|------------------------------|
| 16 $\frac{3}{4}$ | 6 $\frac{1}{2}$ | 7 $\frac{1}{4}$ | Uganda | J. K. Hill. |
| 16 $\frac{3}{4}$ | 7 | 4 | East Africa | J. N. Dracopoli. |
| 16 $\frac{5}{8}$ | 5 $\frac{7}{8}$ | 6 $\frac{1}{4}$ | Manda Island | British Museum. |
| 16 $\frac{1}{2}$ | 7 | 7 | East Africa | Sheffield Neave. |
| 16 $\frac{1}{2}$ | 6 $\frac{1}{4}$ | 8 | Do. | Major H. B. Dalgety. |
| 16 $\frac{1}{2}$ | 7 | 7 $\frac{1}{2}$ | Do. | E. H. Lichfield. |
| 16 $\frac{1}{2}$ | 6 | 7 $\frac{3}{4}$ | Do. | F. W. Belt. |
| 16 $\frac{1}{3}$ | 6 | 7 | East C. Africa | The late A. H. Sharp. |
| 16 $\frac{1}{3}$ | 7 | 8 | East Africa | J. Jay White. |
| 16 | 6 | 3 $\frac{1}{2}$ | Do. | T. P. A. Holford. |
| 16 | 6 | 8 $\frac{1}{4}$ | Do. | A. de Rothschild. |
| 16 | 6 | 6 | Do. | Duke of Alba. |
| 16 | 6 | 6 $\frac{1}{4}$ | Do. | W. N. McMillan. |
| 16 | 5 $\frac{3}{4}$ | 6 $\frac{1}{2}$ | Do. | Abel Chapman. |
| 16 | 6 $\frac{1}{2}$ | 5 $\frac{1}{2}$ | Do. | Capt. T. H. Rivers Bulkeley. |

The following belong to the Upper Nile *T. s. bor* :—

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|-----------------|-----------------|------------------------|------------------------------------|
| 15 $\frac{1}{8}$ | 6 $\frac{1}{4}$ | 6 | Edward Nyanza | Major P. H. G. Powell-Cotton. |
| 14 $\frac{1}{2}$ | 4 $\frac{3}{4}$ | 5 $\frac{1}{2}$ | Sudan | The late Capt. H. S. Logan. |
| 14 | 5 $\frac{1}{2}$ | 7 $\frac{1}{4}$ | Wadelai | Lieut.-Col. M. L. Carleton. |
| -14 | 5 $\frac{1}{4}$ | 6 $\frac{3}{4}$ | Gondokoro | Dr. A. MacCarthy Morrogh. |
| 13 $\frac{1}{2}$ | 5 | ... | Blue Nile | G. L. Harrison. |
| 13 $\frac{1}{2}$ | 5 $\frac{1}{2}$ | 4 $\frac{3}{4}$ | Bahr-el-Ghazal | Capt. R. B. Airey. |
| 13 $\frac{3}{8}$ | 6 | 1 $\frac{1}{4}$ | Do. | Capt. H. M. Hutchinson. |
| 13 | 5 | 6 | Do. | Capt. A. C. Jeffcoat. |
| 12 $\frac{7}{8}$ | 5 $\frac{3}{4}$ | 5 $\frac{1}{4}$ | White Nile | Earl of Kingston. |
| 12 $\frac{3}{4}$ | 5 $\frac{1}{2}$ | 3 $\frac{1}{2}$ | Do. | E. C. Crispin. |
| 12 $\frac{3}{4}$ | 5 $\frac{1}{2}$ | 4 $\frac{3}{4}$ | Dinder Valley | C. Bower Ismay. |
| 12 $\frac{1}{2}$ | 5 $\frac{3}{8}$ | 5 | Edward Nyanza | Mrs. P. H. G. Powell-Cotton. |
| 12 $\frac{1}{2}$ | 5 | 5 $\frac{1}{4}$ | S. of Abukutu | Major R. M. Sanders. |
| 12 $\frac{1}{2}$ | 5 $\frac{1}{2}$ | 2 $\frac{3}{8}$ | Sudan | Prince Colloredo Mannsfeld. |
| 12 $\frac{3}{8}$ | 4 $\frac{1}{2}$ | 5 $\frac{1}{4}$ | White Nile | G. C. Whitaker. |
| 12 $\frac{1}{4}$ | 5 | 5 | Sudan | Col. E. G. T. Bainbridge. |
| 12 | 5 $\frac{1}{4}$ | 4 | Blue Nile | Capt. N. A. Orr-Ewing. |
| 12 | 4 $\frac{1}{4}$ | 4 $\frac{1}{4}$ | Dinder Valley | R. A. Colvin. |
| 11 $\frac{7}{8}$ | 5 $\frac{1}{4}$ | 5 $\frac{1}{4}$ | Do. | C. E. Russell. |
| 11 $\frac{7}{8}$ | 4 $\frac{1}{2}$ | 6 | White Nile | Capt. G. S. Cameron. |
| 11 $\frac{3}{4}$ | 4 $\frac{1}{2}$ | 3 $\frac{5}{8}$ | Do. | Capt. P. M. Larken. |
| 11 $\frac{1}{2}$ | 5 | 3 $\frac{5}{8}$ | Do. | Capt. F. L. Livingstone-Learmonth. |
| 11 $\frac{1}{2}$ | 5 | 4 $\frac{1}{4}$ | Do. | Capt. P. A. Wilson. |
| 11 $\frac{1}{2}$ | 5 | 4 $\frac{1}{2}$ | Setit Valley | Earl of Sefton. |

- Owner's measurements.



Head of Abyssinian Bushbuck shot in the Webbe Shebeyle District, Somaliland,
by Lieut.-Col. H. G. C. Swayne.

Of the following specimens some belong to the Abyssinian *T. s. decula*, but the one from the Hawash River represents *T. s. multicolor*, while the Somali examples may be either *T. s. delamerei*, or *T. s. fasciatus*.

| Length on front curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|---------------------------|---------------------|----------------|--------------------------|-------------------------------|
| -17 | ... | ... | Somaliland . . . | Col. H. G. C. Swayne. |
| -16½ | 6¼ | 5 | Do. . . . | A. H. Straker. |
| -12½ | 5¼ | 3½ | Hawash Valley, Abyssinia | Viscount Edmond de Poncins. |
| -13¾ | 5½ | 5¼ | Harar, Abyssinia . . | Prince de Lucinge. |
| 13½ | 5¾ | 4½ | Do. . . . | Ivor Buxton. |
| 12¾ | 5 | 5¼ | Abyssinia | W. D. James. |
| 12 | 5¼ | 5½ | Do. . . . | British Museum. |
| 11¾ | 6 | 5½ | Do. . . . | A. E. Butter. |
| 11½ | 4¾ | 4¾ | Do. . . . | Major P. H. G. Powell-Cotton. |
| 11 | 4¾ | 5¼ | Do. . . . | Sir Edmund G. Loder, Bart. |
| 11 | 5¼ | 5 | Setit Valley . . . | Col. Ralph Vivian. |
| 11 | 4¾ | 2¾ | Northern Abyssinia . . | British Museum. |

-. Owner's measurements.



Horns of Nyala. From a specimen presented by Mr. Rowland Ward to the British Museum.

The NYALA (*Tragelaphus angasi*).

Nyala, Zulu.

Bo, Nyasa.

This representative of the bushbuck group is a large, delicately built species, standing about 3 feet 6 inches at the shoulder. Weight about 250 to 300 lbs. In both sexes the hair is very long and coarse, but in the male the colour is dark greyish brown with a small number of indistinct white stripes, while in the female it is bright reddish chestnut with more numerous and clearly defined stripes. The males have a fringe of long hair on the throat and the under-parts of the body, and a white crest along the back. The lower part of the legs is tan, and the hoofs are short.

Distribution.—South-East Africa, including Zululand, Delagoa Bay, and Nyasaland; on the West Coast it has been reported from Angola, although this form may indicate a distinct local race.

| On front curve. | Length. | | Tip to Tip. | Locality. | Owner. |
|--------------------|------------------|---------------------|------------------|-----------------------|---|
| | Straight. | Circum- ference. | | | |
| 31 $\frac{1}{2}$ | 26 | 8 $\frac{1}{2}$ | 12 $\frac{3}{4}$ | Zululand . . . | British Museum (Rowland Ward). |
| 31 $\frac{3}{8}$ | 24 $\frac{5}{8}$ | 8 $\frac{1}{4}$ | 9 $\frac{1}{2}$ | Do. | Hon. Walter Rothschild. |
| 31 $\frac{1}{8}$ | 24 $\frac{1}{2}$ | 8 $\frac{1}{4}$ | 3 $\frac{1}{2}$ | Shiré River, B.C.A. . | Fergus MacLagan. |
| 29 $\frac{1}{4}$ | 23 | 8 | 13 | S.E. Africa . . . | Lieut.-Col. Lord Douglas Compton. |
| 29 $\frac{3}{8}$ | 25 | 7 $\frac{3}{4}$ | 14 $\frac{1}{4}$ | Zululand | Col. D. Bruce. |
| 29 $\frac{1}{4}$ | ... | ... | . | Delagoa Bay . . . | American National Collection. |
| 29 $\frac{1}{4}$ | 24 $\frac{1}{2}$ | 9 | 13 | ? | C. B. Addison. |
| 28 $\frac{3}{4}$ | 22 $\frac{1}{2}$ | 8 $\frac{1}{4}$ | 8 $\frac{1}{2}$ | S.E. Africa . . . | H. L. Pattinson. |
| 28 $\frac{1}{2}$ | 23 $\frac{3}{4}$ | 8 | 12 $\frac{3}{4}$ | Zululand | Hon. Walter Rothschild. |
| 28 $\frac{1}{2}$ | 22 | 7 $\frac{3}{4}$ | 8 $\frac{1}{2}$ | Do. | A. Cameron. |
| 28 $\frac{1}{2}$ | 23 $\frac{1}{2}$ | 7 $\frac{3}{4}$ | 11 $\frac{1}{2}$ | Do. | H. C. da Costa. |
| 28 $\frac{1}{4}$ | 21 $\frac{1}{4}$ | 7 $\frac{1}{4}$ | 9 $\frac{1}{4}$ | Delagoa Bay . . . | R. T. Coryndon. |
| 28 $\frac{1}{4}$ | 24 $\frac{1}{4}$ | 7 $\frac{3}{4}$ | 13 | Do. | Capt. R. Meinertzhagen. |
| 28 $\frac{1}{8}$ | 23 $\frac{5}{8}$ | 8 $\frac{1}{4}$ | 9 | Do. | H. W. Elliott. |
| 28 | 24 | 8 | 15 | Katanga, B.C.A. . . | John Yule. |
| 28 | 23 | 7 $\frac{1}{4}$ | 13 $\frac{1}{4}$ | Near Chiromo, B.C.A. | Surgeon J. Dowson, R.N. |
| 28 | ... | 8 $\frac{1}{4}$ | 10 $\frac{1}{4}$ | South Africa . . . | British Museum. |
| 28 | 22 $\frac{3}{4}$ | 7 $\frac{1}{4}$ | 17 $\frac{1}{2}$ | Delagoa Bay . . . | F. A. R. Zurcher. |
| 27 $\frac{3}{4}$ | 23 $\frac{3}{4}$ | 8 | 15 $\frac{1}{4}$ | Do. | R. T. Coryndon. |
| 27 $\frac{3}{4}$ | 22 $\frac{1}{2}$ | 7 $\frac{1}{4}$ | 10 | Do. | Marquis Pizzardi. |
| 27 $\frac{1}{2}$ | 22 $\frac{1}{2}$ | 8 | 9 $\frac{1}{2}$ | Do. | Major-Gen. Sir J. Dartnell. |
| 27 $\frac{1}{2}$ | 22 $\frac{1}{4}$ | 7 $\frac{5}{8}$ | 8 $\frac{1}{2}$ | Do. | C. D. Rudd. |
| 27 $\frac{1}{2}$ | 20 | 8 | 5 $\frac{1}{4}$ | Do. | R. Elliott-Cooper. |
| 27 $\frac{1}{2}$ | 23 $\frac{1}{2}$ | 7 $\frac{1}{2}$ | 15 $\frac{3}{4}$ | Do. | Sir H. J. Goold-Adams. |
| 27 $\frac{3}{8}$ | 23 $\frac{1}{2}$ | 8 $\frac{1}{8}$ | 10 $\frac{1}{8}$ | South Africa . . . | Sir Edmund G. Loder, Bart. |
| 27 $\frac{1}{4}$ | 22 $\frac{3}{4}$ | 7 $\frac{1}{4}$ | 10 $\frac{3}{4}$ | Do. | Abe Bailey. |
| 26 $\frac{1}{4}$ | 21 $\frac{1}{2}$ | 7 $\frac{1}{4}$ | 13 $\frac{1}{2}$ | P.E. Africa . . . | Lieut. Hon. R. O. B. Bridge- man, R.N. |
| 26 $\frac{1}{4}$ | 22 $\frac{1}{4}$ | 7 $\frac{3}{8}$ | 13 $\frac{1}{2}$ | Do. | G. H. R. Hurst. |



Skull and Horns of the Mountain Nyala. From the specimen presented by Mr. Ivor Buxton to the British Museum.

The MOUNTAIN NYALA (*Tragelaphus buxtoni*).

Allied in the form of the horns and the colouring of the male to the nyala, but nearly as large as the typical kudu, and the two sexes said to be similar in colour. The male has a dark-brown coat of moderate length, with the usual face-markings; the under surface of the lower jaw, two gorgets on the throat and chest, a few spots on the flanks, and in some cases two stripes—one larger than the other—white. There is no fringe on the under-parts, but a crest of longish white and black hairs along the back. Legs with the front surface much like the back in colour, but elsewhere white. Horns with yellow tips; varying somewhat in form, and intermediate in this respect between the nyala and the kudu. At first called the Spotted Kudu.

Distribution.—The Sahatu (Shabatu) Mountains of North-Western Gallaland, to the east-north-east of Lake Zuay (Zwei).

| Length. | | Circum- ference. | Tip to lip. | Locality. | Owner. |
|----------------------|-------------------|---------------------|----------------|-------------------|-------------------------------|
| On outside curve. | Straight line. | | | | |
| 39 | 30½ | 9¾ | 22 | Sahatu Mountains. | M. C. Albright. |
| 37 | 26½ | 9¼ | 21 | Do. | British Museum (Ivor Buxton). |



Horns of Situtunga. From Mr. John Yule's specimen.

The **SITUTUNGA** (*Tragelaphus* [*Limnotragus*] *spekei*).

Situtanga, Barotsi.

Zowi, Chilala and Chibisa.

Nakong, Batauwani of Lake
Ngami.

Njobi, Waganda.

N'zoi, Lakanga.

Kawi, Cameruns.

Mluri, Duala.

Nkaya and *Nkoko*, Congo.

Situtunga, *Puvula*, *Unzuzu*, Chobi
and Central Zambesi.

Shichinshebe, Chila.

The typical *situtunga* differs from the other members of the group by the elongation of the hoofs, which are thus adapted for supporting the weight of the body on the spongy soil of the marshes in which these antelopes dwell. The lateral hoofs are much more developed than in the other species. In the typical eastern race from the Victoria Nyanza district the adult males are uniformly greyish brown without stripes, while the females are rufous with joint stripes. On the other hand, in the Zambesi *T. s. selousi*, the adults of both races are uniformly greyish brown. In the western *T. s. gratus*, the colouring

of the upper-parts approximates to that of the nyala, the ground-colour of the male being brownish grey, and that of the female bright rufous, marked in both with white stripes on the back and spots on the face and flanks, with two white gorgets on the throat. There is no fringe on the throat. In *T. s. albonotatus*, whose habitat is unknown, the white face-markings are larger. Height at shoulder from about 45 to 48 inches. The horns of the males are longer and more twisted than in other members of the genus, and wear yellow at the tips.

Distribution.—The situtunga is typically an inhabitant of the dense reed-swamps bordering the rivers of Central, South-Central, and East Africa. These antelopes are semi-aquatic in habits, frequently burying themselves up to the eyes in the water. Consequently they are some of the most difficult of all antelopes to kill; but by firing the reed-beds in the dry season, the natives are able to spear the situtunga as they cross open water. At night these antelopes leave the reed-brakes for the islands in the rivers, but before dawn return to their impenetrable covert. A few are found on a bush-clad rocky island far out in the Victoria Nyanza; in which neighbourhood the species was first discovered by Captain Speke.

A.—TYPICAL and CHOBI RACES (*T. spekei typicus* and *T. s. selousi*).

| Length. | | | | Locality. | Owner. |
|------------------|------------------|-----------------|------------------|------------------------------|--------------------------------|
| On front curve. | Straight line. | Circumference. | Tip to Tip. | | |
| 35 $\frac{1}{2}$ | 28 $\frac{5}{8}$ | 8 | 15 $\frac{1}{4}$ | Lake Mweru . . | Hon. Walter Rothschild. |
| 35 $\frac{1}{2}$ | 29 $\frac{1}{2}$ | 8 $\frac{3}{4}$ | 19 $\frac{1}{4}$ | B.C. Africa . . | F. E. F. Jones. |
| 35 | 28 $\frac{5}{8}$ | 8 | 26 | Bahr-el-Ghazal . . | Hon. Walter Rothschild. |
| 35 | 28 | 7 $\frac{1}{2}$ | 15 $\frac{1}{2}$ | South end of Lake Tanganyika | John Yule. (See illustration.) |
| 34 $\frac{1}{4}$ | 29 $\frac{1}{2}$ | 8 | 18 | ? | C. S. Mann. |
| 33 $\frac{1}{2}$ | 27 $\frac{5}{8}$ | 7 $\frac{7}{8}$ | 19 | ? | Abe Bailey. |
| 33 $\frac{1}{4}$ | 26 $\frac{1}{4}$ | 8 | 16 $\frac{3}{8}$ | Okavango Valley . . | Sir H. J. Goold-Adams. |
| 32 $\frac{3}{4}$ | 27 $\frac{3}{8}$ | 7 $\frac{3}{8}$ | 26 $\frac{3}{8}$ | Chinde . . . | Hon. Walter Rothschild. |
| 32 $\frac{5}{8}$ | 27 | 7 $\frac{1}{2}$ | 16 $\frac{3}{8}$ | Chobi Valley . . | F. C. Selous. |
| 32 $\frac{1}{2}$ | 25 $\frac{1}{2}$ | 7 $\frac{1}{2}$ | 7 $\frac{3}{4}$ | N.W. Rhodesia . . | A. J. Brandon. |
| 32 $\frac{3}{8}$ | 25 $\frac{3}{4}$ | 8 | 19 $\frac{1}{2}$ | Do. . . | A. F. Williams. |
| 32 | 25 | 8 $\frac{1}{4}$ | 16 $\frac{1}{4}$ | ? | G. M. Bond. |
| 31 $\frac{3}{4}$ | 25 $\frac{3}{4}$ | 8 $\frac{1}{8}$ | 17 $\frac{1}{4}$ | Near Linyanti . . . | F. C. Selous. |
| 31 $\frac{1}{4}$ | 26 $\frac{1}{2}$ | 8 $\frac{1}{4}$ | 17 $\frac{3}{4}$ | N.E. Rhodesia . . | J. H. Whitehouse. |

— Owner's measurements.

| Length. | | Circum- ferences. | Tip to Tip. | Locality. | Owner. |
|-------------------------------|-------------------|----------------------|------------------|-----------------|--------------------------------|
| On front curve. | Straight line. | | | | |
| 31 $\frac{1}{2}$ | 24 $\frac{5}{8}$ | 7 | 16 $\frac{1}{8}$ | Chobi Valley | British Museum (F. C. Selous). |
| 31 $\frac{1}{2}$ | 23 $\frac{5}{8}$ | 8 | 15 | Ngamiland | Mervyn G. Williams. |
| 31 $\frac{1}{2}$ | 25 $\frac{1}{4}$ | 7 $\frac{1}{2}$ | 13 $\frac{1}{4}$ | Bangweolo | F. Smitheman. |
| 31 $\frac{1}{2}$ | 27 | 7 $\frac{5}{8}$ | 21 $\frac{1}{2}$ | N.W. Rhodesia | Dr. W. D. Waterhouse. |
| 31 $\frac{1}{4}$ | 26 $\frac{1}{4}$ | 7 $\frac{1}{2}$ | 24 $\frac{1}{2}$ | Ngamiland | H. D. Hannay. |
| 31 $\frac{1}{4}$ | 25 $\frac{1}{4}$ | 7 $\frac{3}{4}$ | 17 $\frac{1}{2}$ | Do. | F. T. Garbutt. |
| ¹ 31 $\frac{1}{8}$ | 25 $\frac{9}{16}$ | 7 $\frac{7}{8}$ | 14 $\frac{5}{8}$ | Congoland | Paris Museum (S. de Brazza). |
| 31 | 23 $\frac{3}{4}$ | 8 | 9 $\frac{1}{2}$ | ? | G. Richards. |
| 30 $\frac{3}{4}$ | 26 $\frac{1}{2}$ | 7 $\frac{1}{2}$ | 16 | N.E. Rhodesia | H. Cookson. |
| 30 $\frac{1}{2}$ | 24 $\frac{1}{4}$ | 8 $\frac{1}{4}$ | 14 $\frac{1}{4}$ | Barotsiland | Sir Edmund G. Loder, Bart. |
| 30 $\frac{1}{2}$ | 25 $\frac{1}{2}$ | 7 $\frac{1}{4}$ | 16 $\frac{1}{4}$ | Do. | Major J. Carden. |
| 30 $\frac{1}{2}$ | 24 $\frac{1}{2}$ | 7 $\frac{1}{4}$ | 12 $\frac{1}{2}$ | B.C. Africa | Grahamstown Museum. |
| 30 $\frac{1}{4}$ | 25 $\frac{3}{4}$ | 7 $\frac{1}{2}$ | 19 $\frac{3}{4}$ | N.W. Rhodesia | G. L. Harrison. |
| 30 $\frac{1}{4}$ | 25 $\frac{1}{4}$ | 8 | 14 $\frac{1}{4}$ | Do. | A. C. Brandon. |
| 30 | 24 $\frac{1}{4}$ | 7 $\frac{3}{4}$ | 16 | Do. | E. McClellan. |
| 30 | 24 | 8 | 16 | Bechuanaland | Sir Ralph Williams. |
| 30 | 24 | 7 | 17 $\frac{1}{4}$ | Bahr-el-Ghazal | Capt. R. B. Airey. |
| 29 $\frac{3}{4}$ | 24 | 7 $\frac{1}{2}$ | 19 | Do. | Lieut. W. B. Drury, R.N. |
| 28 $\frac{1}{4}$ | 23 $\frac{1}{2}$ | 7 $\frac{3}{4}$ | 20 | Do. | Capt. P. E. Vaughan. |
| 25 $\frac{1}{2}$ | 22 $\frac{3}{4}$ | 7 $\frac{1}{2}$ | 13 $\frac{1}{2}$ | Angola | Major Boyd A. Cuninghame. |
| 24 $\frac{1}{4}$ | 21 | 6 $\frac{3}{4}$ | 9 $\frac{1}{2}$ | Do. | C. H. Pemberton. |
| 23 $\frac{7}{8}$ | ... | 7 $\frac{7}{8}$ | 6 $\frac{1}{4}$ | Lake Kivu | N. A. H. Campbell. |
| ² 22 $\frac{1}{2}$ | 20 $\frac{1}{4}$ | 7 | 11 $\frac{1}{2}$ | Uganda | Capt. de Courcy Ireland. |
| 22 | 19 | ... | 7 $\frac{1}{2}$ | Do. | Major R. H. Price. |
| 20 $\frac{3}{4}$ | 18 $\frac{1}{4}$ | 6 $\frac{1}{4}$ | 10 | Benguela | G. W. Penrice. |
| -17 $\frac{1}{4}$ | ... | 5 $\frac{3}{4}$ | 7 | Victoria Nyanza | E. Gedge. |
| 15 $\frac{3}{8}$ | 14 $\frac{1}{8}$ | 5 $\frac{3}{8}$ | 8 $\frac{1}{4}$ | Do. | Hon. Walter Rothschild. |

- Owner's measurements.

¹ Determination provisional.² In the collection of Sir Hy. E. M. James.



Horns of Western Situtunga from the Gambia.

B.—WESTERN RACE (*T. spekei gratus*).

| Length. | | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|--------------------|-------------------|---------------------|------------------|--------------------|---------------------------------|
| On front curve. | Straight line. | | | | |
| 34 $\frac{3}{4}$ | 28 $\frac{1}{2}$ | 8 | 21 | Gambia . . . | H. C. Goddard. |
| 32 $\frac{3}{4}$ | 27 $\frac{1}{4}$ | 9 $\frac{1}{8}$ | 16 $\frac{1}{8}$ | Gabun . . . | Sir Edmund G. Loder, Bart. |
| 32 $\frac{5}{8}$ | 25 $\frac{1}{4}$ | 7 | 8 | Gambia . . . | Hon. Walter Rothschild. |
| 30 $\frac{1}{4}$ | 26 $\frac{7}{8}$ | 8 | 14 $\frac{5}{8}$ | French Congo . . . | Do. |
| 30 | 26 $\frac{1}{4}$ | 7 $\frac{3}{4}$ | 14 $\frac{7}{8}$ | ? | Abe Bailey. |
| 29 $\frac{1}{2}$ | 24 $\frac{1}{2}$ | 8 $\frac{1}{8}$ | 14 | Gabun . . . | American National Collection. |
| 28 $\frac{1}{2}$ | 23 | 8 | 8 | Gambia . . . | A. Ohlsson. (See illustration.) |
| 27 $\frac{1}{2}$ | 22 $\frac{5}{8}$ | 8 $\frac{1}{4}$ | 6 $\frac{1}{2}$ | N. Nigeria . . . | J. C. Sciortino. |
| 25 $\frac{3}{4}$ | 21 $\frac{1}{4}$ | 6 $\frac{3}{4}$ | 12 $\frac{1}{4}$ | Gambia . . . | Guy H. Sangster. |
| 22 $\frac{3}{4}$ | 19 | 7 $\frac{5}{8}$ | 5 | Gabun . . . | British Museum. |
| 22 $\frac{3}{4}$ | 19 $\frac{1}{2}$ | 7 | 10 $\frac{3}{8}$ | Nigeria . . . | Major J. A. Burdon. |
| 22 $\frac{1}{2}$ | 19 $\frac{3}{4}$ | 6 $\frac{3}{4}$ | 11 | Do. . . . | A. F. Williams. |



Head of Kudu.

The KUDU (*Strepsiceros capensis*).

| | |
|---------------------------------|--------------------------------------|
| <i>Agarzin</i> , Abyssinian. | <i>Kudu</i> , Hottentot. |
| <i>Ibala-bala</i> , Amandebili. | <i>Ngomo</i> , Chilala and Chibisa. |
| <i>I-zilarwa</i> , Makalaka. | <i>Noro</i> , Mashona. |
| <i>Dwar</i> , Masara. | <i>Tata</i> , M'Kua. |
| <i>Godir</i> , Somali. | <i>Tolo</i> , Bechuana, Barotsi, and |
| <i>Itolo</i> , Basuto. | Ngami. |
| <i>Itshongonons</i> , Swazi. | <i>Unza</i> , Mazubia. |
| <i>Muziloua</i> , Batonga. | <i>Unzwa</i> , Makuba. |
| | <i>Shombololo</i> , Chila. |

Although rather less brilliantly coloured than some of the bush-buck, the two kudus are among the handsomest of all antelopes, their spiral horns, striped coat, and noble carriage rendering them really magnificent creatures. Their chief difference from the bushbucks is to be found in the fuller spiral formed by the horns and the larger ears, both sexes being nearly similar in colour. The special characteristics of the greater or true kudu are the large size (height at shoulder reaching to 4 feet 10 inches or 5 feet), the presence of a thick fringe of long hair on the throat, and the open spiral of the horns of the bull. The colour is too well known to require description. The Somali kudu (*S. c. chora*) differs from the typical southern form in having only about five transverse stripes instead of the usual nine or ten.

Distribution.—The kudu, in suitable localities, ranges over the greater part of Africa south of the Sahara, extending from Abyssinia and Somaliland through East and Central Africa to the Cape, and westward across the continent to Angola, where the Congo apparently forms its northern limits. In spite of its bulk, it is an adept at concealment; and this trait, coupled with its general wariness and acute sense of smell and hearing, has largely contributed to its survival in districts where it is much hunted. Except in the Uitenhage jungles, where it is preserved by British farmers, the kudu has been exterminated from Cape Colony. In Eastern Mashonaland it is still abundant, as it is in the highlands of Somaliland, in which country it is rarely met with on the plains. The Somali form inhabits less thickly wooded country than the southern race, and it is in accordance with this that it has fewer stripes.

Although unrivalled at traversing rocky hills, the kudu is by no means a good performer on the flat (where it seldom allows itself to be surprised), and can be ridden down without much difficulty by a fairly well-mounted hunter. Horned females occur rarely.



Skull and Horns of Kudu. From the specimen in the American National Collection.

A.—**TYPICAL RACE (*S. capensis typicus*).**

| Length. | | Circumference. | Tip to Tip. | Locality. | Owner. |
|-------------------|------------------|------------------|------------------|-----------------------|--|
| On outside curve. | Straight line. | | | | |
| . | 48 $\frac{7}{8}$ | ... | ... | Ngamiland . . . | American National Collection (See illustration.) |
| 64 | 41 | 11 | 23 | Mashonaland . . | F. C. Selous. |
| 63 $\frac{1}{2}$ | 46 $\frac{7}{8}$ | 11 $\frac{1}{4}$ | 45 $\frac{3}{4}$ | Upper Shiré Valley . | Capt. C. H. Stigand. |
| 63 | 48 $\frac{1}{2}$ | 12 $\frac{1}{2}$ | 49 | Macloutsie Valley . | E. W. Tompson. |
| 63 | 44 $\frac{1}{2}$ | ... | 42 $\frac{3}{4}$ | Near Tete, Zambesia . | Major P. W. Forbes. |
| -63 | 39 | 10 $\frac{1}{2}$ | 12 | ? | Mr. Justice Hopley. |
| -62 | ... | 12 | 22 | Delagoa Bay . . . | C. S. Mann. |

Owner's measurements.

| Length. | | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|----------------------|-------------------|---------------------|------------------|---------------------|----------------------------|
| On outside curve. | Straight line. | | | | |
| -61 $\frac{1}{2}$ | 45 $\frac{1}{2}$ | 10 $\frac{3}{4}$ | 34 | ? | A. Griffiths. |
| 60 $\frac{3}{8}$ | 45 $\frac{3}{8}$ | 11 $\frac{1}{2}$ | 33 | Macloutsie Valley . | F. C. Selous. |
| -60 $\frac{3}{8}$ | 44 | ... | 31 | South Africa . | H. T. and A. H. Glynn. |
| -60 $\frac{1}{2}$ | 47 | 10 $\frac{1}{2}$ | 44 $\frac{1}{4}$ | Do. . | A. Ohlsson. |
| 59 $\frac{1}{2}$ | 44 | 11 $\frac{1}{2}$ | 25 $\frac{1}{4}$ | ? | S. T. Teague. |
| 59 $\frac{1}{2}$ | 43 $\frac{1}{4}$ | 11 | 38 | South Africa . | W. A. Simpson Hinchliffe. |
| 59 $\frac{1}{4}$ | 42 $\frac{1}{4}$ | 11 $\frac{5}{8}$ | 19 | ? | G. Richards. |
| 59 | 50 | 12 $\frac{1}{4}$ | 48 $\frac{1}{4}$ | N.W. Rhodesia . | R. C. Forster. |
| 58 $\frac{1}{2}$ | 44 $\frac{1}{2}$ | 11 | 33 $\frac{1}{2}$ | Do. . | Capt. H. T. Byas. |
| 58 $\frac{1}{4}$ | 46 | 10 | 39 $\frac{1}{4}$ | South Africa . | Abe Bailey. |
| 58 | 46 | 11 $\frac{1}{2}$ | 39 | S.E. Mashonaland . | J. G. Millais. |
| 58 | 46 | ... | ... | Zomba, B.C.A. . | D. MacAlpine. |
| 58 | 43 $\frac{1}{2}$ | 10 $\frac{1}{4}$ | 32 $\frac{1}{2}$ | Okavango Valley . | Sir H. J. Goold-Adams. |
| 57 $\frac{1}{2}$ | 40 $\frac{3}{4}$ | 11 $\frac{1}{4}$ | 22 $\frac{1}{4}$ | B.C. Africa . | F. A. Coe. |
| 57 $\frac{1}{2}$ | 41 | 11 $\frac{1}{8}$ | 21 $\frac{1}{2}$ | N.E. Transvaal . | A. M. Naylor. |
| 57 $\frac{1}{2}$ | 41 $\frac{1}{2}$ | 10 | 27 | Do. . | Capt. D. J. Marker. |
| 57 $\frac{1}{2}$ | 41 | 10 $\frac{1}{2}$ | 25 | B.C. Africa . | J. H. Hayes. |
| 57 $\frac{1}{2}$ | 44 | 11 $\frac{1}{4}$ | 31 | Transvaal . | Capt. A. C. H. Kennard. |
| 57 $\frac{1}{2}$ | 45 $\frac{1}{4}$ | 12 | 41 | B.C. Africa . | E. Homer. |
| 57 $\frac{1}{4}$ | 45 $\frac{3}{8}$ | 10 $\frac{1}{4}$ | 35 | Do. . | H. C. Macdonald. |
| 57 $\frac{1}{4}$ | 44 $\frac{3}{4}$ | 11 $\frac{3}{4}$ | 34 $\frac{3}{4}$ | South Africa . | Sir Edmund G. Loder, Bart. |
| 57 $\frac{1}{4}$ | 41 $\frac{3}{4}$ | 11 $\frac{3}{8}$ | 23 | N.W. Rhodesia . | G. L. Harrison. |
| 57 | 43 | 14 | 32 | South Africa . | A. Moseley. |
| 57 | 42 $\frac{1}{4}$ | 11 | 31 | Do. . | Major M. D. Graham. |
| 57 | 40 $\frac{1}{2}$ | 12 | 24 $\frac{1}{4}$ | Do. . | G. M. Spencer Smith. |
| 57 | 40 $\frac{1}{2}$ | 10 $\frac{3}{4}$ | 28 $\frac{1}{4}$ | N.W. Rhodesia . | G. de P. Colville. |
| 56 $\frac{3}{4}$ | 43 | 11 $\frac{1}{2}$ | 30 $\frac{1}{2}$ | Do . | Capt. P. R. Bald. |
| 56 $\frac{1}{2}$ | 43 $\frac{1}{2}$ | 11 $\frac{1}{2}$ | 26 $\frac{1}{2}$ | Matabililand . | W. Van Ness. |
| 56 $\frac{1}{2}$ | 41 | 10 | 29 $\frac{1}{2}$ | ? | J. W. Williamson. |
| 56 $\frac{1}{2}$ | 41 $\frac{1}{2}$ | 10 $\frac{1}{2}$ | 23 $\frac{3}{4}$ | Matabililand . | Hon. C. Greville. |
| 56 $\frac{1}{4}$ | 44 $\frac{1}{4}$ | 11 $\frac{3}{8}$ | 33 $\frac{1}{4}$ | South Africa . | Hon Walter Rothschild. |

- Owner's measurements.

| Length. | | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|----------------------|-------------------|---------------------|----------------|--------------------|---------------------|
| On outside curve. | Straight line. | | | | |
| 56 | 44½ | 11 | 44 | South Africa . . . | E. M. Crosfield. |
| 56 | 43½ | 10½ | 33½ | Do. | M. Boger. |
| 56 | 44 | 10¼ | 39 | Do. | F. B. Dunsford. |
| 56 | 30 | 10 | 23½ | Do. | P. H. Taylor. |
| 55¾ | 40½ | 10½ | 36 | Do. | C. M. Rolker. |
| 55¾ | 41¾ | . . | 35 | Mazoe Valley . . . | R. C. Batley. |
| 55¾ | 41 | 10¾ | 36 | Do. | F. Struben. |
| 55½ | 37 | 11½ | 21 | N.W. Rhodesia . . | G. F. Watherston. |
| 55½ | 41 | 10¾ | 35 | S.W. Africa . . . | C. G. Carew Elers. |
| 55½ | 44 | 11½ | 34 | B.C. Africa . . . | W. M. Eatherley. |
| 55 | 44 | 11½ | 36 | N.W. Rhodesia . . | Major C. L. Graham. |
| ♀ 37 | 10 | | | South Africa . . . | F. C. Selous. |

B. -SOMALI and EAST AFRICAN RACE (*S. capensis chora*).

The reference of some of the specimens to this race is provisional.

| Length. | | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|----------------------|-------------------|---------------------|----------------|--------------------|--------------------------------|
| On outside curve. | Straight line. | | | | |
| 61 | 42½ | 11 | 34 | East Africa . . . | G. G. Longden. |
| 58½ | 41½ | 11 | 29 | Do. | G. F. Archer. |
| 58 | 43 | 10 | 40 | Somaliland . . . | G. Chetwynd. |
| 57½ | 42 | 11½ | 41 | Lake Baringo . . . | H. Hyde Baker. |
| 57 | 39 | 9½ | 36½ | Somaliland . . . | H. R. H. the Duc d'Orléans. |
| .. | 40·7 | 8·8 | 30·9 | Bahr Setit . . . | Prince Henry of Liechtenstein. |
| 56½ | 35 | 10½ | 30 | Somaliland . . . | Sir Edmund G. Loder, Bart. |
| 56½ | 36½ | 8½ | 21½ | Do. | R. E. Drake-Brockman. |
| 56 | 44½ | 10¾ | 44½ | East Africa . . . | H. C. Phipps. |
| 55 | 40½ | 11 | 35½ | Do. | Capt. the Hon. C. H. C. Guest. |
| 54½ | 39½ | 10 | 27½ | Sudan | Major the Hon. H. Fraser. |
| 54½ | 43 | 10¾ | 39½ | Somaliland . . . | R. A. McClymont. |
| 54½ | 38½ | 10½ | 22½ | Do. | Major P. H. G. Powell-Cotton. |
| 54 | 38¾ | 9½ | 20½ | Do. | Capt. E. J. F. Vaughan. |

| On outside curve. | Length. | | Tip to Tip. | Locality. | Owner. |
|----------------------|-------------------|---------------------|------------------|--------------------|-------------------------------|
| | Straight line. | Circum- ference. | | | |
| 54 | 39 | 10 $\frac{1}{4}$ | 32 | Somaliland . . . | Norman B. Smith. |
| 54 | 40 $\frac{1}{4}$ | 10 | 38 $\frac{3}{4}$ | Do. . . . | J. C. Monteith. |
| 54 | 38 $\frac{1}{2}$ | 10 | 21 $\frac{1}{2}$ | Sudan | Maj.-Gen. B. T. Mahon. |
| 54 | 37 | 10 $\frac{3}{4}$ | 26 $\frac{1}{2}$ | Somaliland . . . | Capt. J. L. Baird. |
| 53 $\frac{3}{4}$ | 37 $\frac{3}{4}$ | 10 | 32 | S. Abyssinia . . . | T. Morse. |
| 53 $\frac{5}{8}$ | ... | 10 $\frac{3}{4}$ | 41 | East Africa . . . | Major P. H. G. Powell-Cotton. |
| 53 $\frac{1}{2}$ | 36 $\frac{1}{2}$ | 9 | 28 | Sudan | Earl of Sefton. |
| 53 $\frac{1}{2}$ | 40 | 11 | 25 | East Africa . . . | Hon. Guy Wilson. |
| 53 $\frac{1}{4}$ | 36 $\frac{3}{4}$ | 9 $\frac{1}{2}$ | 13 $\frac{3}{4}$ | Somaliland . . . | P. K. Glazebrook. |
| 53 | 41 $\frac{1}{2}$ | 11 $\frac{3}{4}$ | 47 $\frac{1}{4}$ | Lake Rudolf . . . | A. E. Butter. |
| 53 | 38 $\frac{3}{4}$ | 9 $\frac{1}{2}$ | 29 | Sudan | Earl of Kingston. |
| 53 | 39 $\frac{1}{4}$ | 11 | 37 $\frac{1}{2}$ | Lake Baringo . . . | Capt. W. H. Nicolson. |
| 53 | 36 $\frac{1}{2}$ | 10 | 8 $\frac{1}{2}$ | Sudan | Capt. G. Stewart. |
| 52 $\frac{3}{4}$ | 39 $\frac{3}{4}$ | 10 $\frac{1}{2}$ | 36 | East Africa . . . | D. J. Shuttleworth. |
| 52 $\frac{1}{4}$ | 39 $\frac{1}{2}$ | 11 $\frac{1}{4}$ | 28 | Do. | Hon. Walter Rothschild. |
| 52 | 37 $\frac{1}{2}$ | 11 $\frac{1}{2}$ | 31 $\frac{1}{2}$ | Do. | Baron Maurice de Rothschild. |
| 51 $\frac{1}{2}$ | 40 | 10 | 42 | Sudan | Maj.-Gen. B. T. Mahon. |
| 51 $\frac{1}{2}$ | 36 $\frac{1}{2}$ | 11 $\frac{1}{2}$ | 25 $\frac{1}{2}$ | Somaliland . . . | Capt. A. E. H. Breslin. |
| 51 $\frac{1}{2}$ | 34 $\frac{1}{4}$ | 10 | 19 | Do. | Capt. F. N. Ransford. |
| 51 | 37 $\frac{3}{4}$ | 11 | 32 $\frac{3}{4}$ | Do. | A. de L. Long. |
| 51 | 33 $\frac{1}{2}$ | 9 $\frac{1}{2}$ | 14 $\frac{1}{4}$ | Do. | Capt. G. G. Gilligan. |
| 51 | 38 $\frac{1}{2}$ | 10 | 30 | Sudan | Capt. A. C. Parker. |
| 50 | 37 | 9 $\frac{1}{4}$ | 27 $\frac{1}{4}$ | Somaliland . . . | Major H. R. Meade. |
| 50 | 39 | 9 | 38 $\frac{1}{2}$ | Do. | Major P. C. Elliott-Lockhart. |
| 50 | 33 $\frac{1}{2}$ | 10 $\frac{1}{4}$ | 18 | Sudan | Capt. E. B. Hankey. |
| 49 $\frac{1}{2}$ | 37 $\frac{1}{2}$ | 10 | 25 $\frac{1}{2}$ | Do. | Capt. C. R. G. Mayne. |
| 49 | 35 $\frac{1}{4}$ | 10 | 21 $\frac{1}{2}$ | Do. | Major C. E. Wilson. |
| 49 | 36 | 10 | 36 $\frac{1}{4}$ | Do. | Capt. G. S. Nickerson. |



Head of Lesser Kudu.

The LESSER KUDU (*Strepsiceros imberbis*).

Andeiro or *Godir*, Somali.
Gadams, Galla.

Sara, Danakil.
Kungu, Swahili.

Except for its brighter colour, the closer spiral and smaller divergence of the horns, the absence of a fringe of long hair on the throat, the more numerous stripes, white throat-bands, and narrower ears, this antelope might almost pass for a miniature of its larger relation. Height at shoulder about 3 feet 5 inches. Weight about 230 lbs.

Distribution. — North-East Africa, from Somaliland to British and German East Africa. This antelope generally goes in pairs or threes, and is partial to the covert of thick bush, from which it seldom emerges except for the purpose of feeding. Its coloration is typical of that of forest-dwelling antelopes, and is essentially of a protective nature.

RECORDS OF BIG GAME

| Length. | | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|----------------------|-------------------|---------------------|------------------|---------------|-------------------------------------|
| On outside curve. | Straight line. | | | | |
| 36 | 27 $\frac{3}{4}$ | 7 $\frac{1}{2}$ | 20 | ? | A. Bolle. |
| 35 $\frac{1}{4}$ | 26 $\frac{1}{4}$ | 7 $\frac{1}{2}$ | 16 $\frac{1}{2}$ | Somaliland | Norman B. Smith. |
| 35 $\frac{1}{4}$ | 26 $\frac{1}{2}$ | 5 $\frac{3}{8}$ | 17 $\frac{3}{4}$ | Do. | G. Chetwynd. |
| 34 $\frac{1}{2}$ | 25 | 7 | 14 $\frac{3}{4}$ | Do. | J. Higgins. |
| 34 $\frac{1}{4}$ | 26 | 6 $\frac{1}{2}$ | 11 | Do. | Hon. Walter Rothschild. |
| 34 | 26 $\frac{1}{2}$ | ... | ... | Do. | Col. H. G. C. Swayne. |
| 34 | 26 | 6 $\frac{3}{4}$ | 14 $\frac{1}{4}$ | Do. | W. W. Ashley. |
| 34 | 27 | 6 $\frac{3}{4}$ | 11 | Do. | British Museum (R. M'D. Hawker). |
| 33 $\frac{1}{2}$ | 26 $\frac{1}{4}$ | 7 $\frac{3}{4}$ | 10 $\frac{1}{2}$ | Do. | A. E. Butter. |
| 33 $\frac{1}{2}$ | 27 | 7 $\frac{1}{4}$ | 11 $\frac{1}{2}$ | Do. | Vicomte de Thiene. |
| 33 | 25 $\frac{3}{4}$ | 6 $\frac{7}{8}$ | 14 | East Africa | The late A. H. Neumann. |
| 32 $\frac{1}{2}$ | 25 $\frac{1}{8}$ | 7 | 8 | Somaliland | Lieut.-Col. T. R. Harkness. |
| 32 $\frac{1}{4}$ | 25 $\frac{3}{4}$ | 7 | 17 | Do. | Sir Edmund G. Loder, Bart. |
| 32 | 24 $\frac{1}{2}$ | 7 | 14 $\frac{1}{2}$ | N. Somaliland | W. F. Whitehouse. |
| 31 $\frac{3}{4}$ | 24 $\frac{1}{4}$ | 6 $\frac{1}{4}$ | 14 $\frac{1}{2}$ | Do. | Lord Delamere. |
| 31 $\frac{1}{2}$ | 25 $\frac{1}{4}$ | 6 $\frac{3}{8}$ | 11 $\frac{5}{8}$ | Do. | Sir John Kirk. |
| 31 $\frac{1}{2}$ | 24 | 6 $\frac{1}{2}$ | 12 | Do. | T. W. H. Clarke. |
| 31 $\frac{1}{2}$ | 24 | 6 $\frac{3}{4}$ | ... | Do. | Col. C. C. Ellis. |
| 31 $\frac{1}{4}$ | 25 | 7 | 10 | Do. | Major G. F. T. Leather. |
| 31 | 25 | 7 $\frac{1}{4}$ | 9 $\frac{1}{2}$ | Do. | W. H. Cobb. |
| 31 | 24 | 6 $\frac{3}{4}$ | 9 $\frac{1}{2}$ | Do. | G. H. Cheetham. |
| 31 | 23 $\frac{1}{4}$ | 7 | 10 $\frac{1}{2}$ | East Africa | G. F. Phillips. |
| 30 $\frac{3}{4}$ | 24 $\frac{3}{8}$ | 6 $\frac{5}{8}$ | 11 $\frac{7}{8}$ | Somaliland | W. D. James. |
| 30 $\frac{5}{8}$ | 25 $\frac{1}{2}$ | 6 $\frac{3}{8}$ | 11 $\frac{1}{8}$ | Do. | A. H. Straker. |
| 30 $\frac{1}{2}$ | 23 $\frac{5}{8}$ | 6 | 9 $\frac{1}{2}$ | Tana Valley | Capt. C. Hankey. |
| 30 $\frac{1}{4}$ | 23 $\frac{1}{4}$ | 7 | 6 $\frac{3}{4}$ | East Africa | W. H. Lindsay. |
| 30 $\frac{1}{4}$ | 24 | 6 $\frac{5}{8}$ | 11 $\frac{7}{8}$ | Somaliland | H. R. H. the Duc d'Orléans. |
| 30 | 24 $\frac{1}{4}$ | 6 $\frac{3}{8}$ | 13 | Do. | T. P. A. Holford. |
| 30 | 23 $\frac{1}{2}$ | 6 $\frac{1}{4}$ | 13 $\frac{1}{4}$ | Do. | W. N. McMillan. |
| 30 | 22 $\frac{3}{4}$ | 6 $\frac{3}{4}$ | 15 $\frac{1}{4}$ | East Africa | C. Bower Ismay. |
| 30 | 23 $\frac{1}{2}$ | 6 $\frac{1}{2}$ | 15 $\frac{3}{4}$ | Somaliland | Capt. A. E. H. Breslin. |

- Owner's measurements.



Head of Bongo.

The BONGO (*Boöcercus euryceros*).

This magnificent antelope, which comes next in point of size to the eland and kudu, was long considered a member of the bushbuck group, with which it agrees in the general type of colouring. It differs, however, in that the tail is tufted (like that of an eland), and also by the presence of horns in both sexes, and some white marks on the legs; the front of the face being brown, with a tawny patch round each eye. The general colour of the coat is bright chestnut-red, marked with a number of narrow vertical white stripes, a white crescent on the breast, a white chevron on the forehead, and two white spots below each eye. In old bulls the coat becomes mahogany-colour. There is no dewlap, throat-fringe, or frontal tuft, and the hair is short. The worn tips of the horns are yellow. Height about 4 feet.

Distribution.—West Africa, from Liberia, through Fanti to the Ashkankolu Mountains, the Gabun, and Sierra Leone, and thence through the forest district to Uganda. The East African representative of the species has been named *B. e. isaaci*.

| On front curve. | Length. | | Tip to Tip. | Locality. | Owner. |
|--------------------|------------------|------------------|------------------|-------------------------|---------------------------------|
| | Straight line. | Circumference. | | | |
| 36 $\frac{3}{4}$ | 29 $\frac{1}{2}$ | 11 $\frac{1}{4}$ | 11 | Mau Forest, E. Africa . | Pretoria Museum (Dr. Sauer). |
| 36 $\frac{1}{4}$ | 30 $\frac{1}{2}$ | 11 $\frac{3}{4}$ | 21 $\frac{5}{8}$ | Do. . | J. Jay White. |
| 35 | 29 $\frac{7}{8}$ | 10 | 11 | Ashanti . . . | Hon. Walter Rothschild. |
| 33 $\frac{3}{4}$ | 27 $\frac{5}{8}$ | 11 | 13 $\frac{3}{4}$ | Mau Forest, E. Africa . | Do. |
| 33 $\frac{1}{2}$ | 27 $\frac{5}{8}$ | 11 | 13 $\frac{3}{4}$ | Do. . | G. L. Harrison. |
| 33 $\frac{1}{2}$ | 27 $\frac{1}{4}$ | 10 $\frac{1}{2}$ | 15 $\frac{1}{2}$ | Do. . | G. C. Whitaker. |
| 32 $\frac{1}{2}$ | 27 | 10 $\frac{5}{8}$ | ... | Ashanti . . . | F. E. Fell. |
| 32 $\frac{1}{4}$ | 26 $\frac{3}{8}$ | 10 $\frac{1}{2}$ | 12 $\frac{1}{4}$ | Togoland . . . | C. Beddington. |
| 31 | ... | 11 | 11 | Do. . . | British Museum. |
| 30 $\frac{3}{4}$ | 25 $\frac{3}{4}$ | 11 $\frac{1}{8}$ | 15 | East Africa . . . | Sir Edward G. Loder, Bart. |
| 30 $\frac{1}{2}$ | 26 | 10 $\frac{3}{4}$ | 13 $\frac{1}{2}$ | Sierra Leone . . . | Capt. E. J. Carter. |
| ♀ 30 $\frac{1}{2}$ | 27 $\frac{1}{2}$ | 8 $\frac{1}{4}$ | 11 | East Africa . . . | Hon. Walter Rothschild. |
| 30 $\frac{1}{4}$ | 24 $\frac{3}{4}$ | 11 | 8 | Do. . . | Rev. S. Weeks. |
| 30 $\frac{1}{4}$ | 24 $\frac{1}{2}$ | 9 $\frac{1}{2}$ | 9 $\frac{1}{4}$ | West Africa . . . | Abe Bailey. |
| 30 | 24 $\frac{1}{8}$ | 9 $\frac{3}{8}$ | 11 $\frac{1}{4}$ | Ashkankolu Mountains | British Museum. |
| ♀ 30 | 27 $\frac{1}{2}$ | 7 $\frac{1}{2}$ | 11 $\frac{1}{2}$ | East Africa . . . | A. F. Williams. |
| 29 $\frac{1}{2}$ | 25 $\frac{7}{8}$ | 9 $\frac{3}{4}$ | 10 $\frac{1}{8}$ | Gabun . . . | British Museum (P. Du Chaillu). |
| 29 | 24 $\frac{1}{2}$ | 10 $\frac{1}{4}$ | ... | Mau Forest, E. Africa . | R. J. Church. |
| 29 | 22 $\frac{7}{8}$ | 10 $\frac{3}{4}$ | 7 | Do. . | G. Grey. |
| 28 $\frac{1}{2}$ | 24 | 9 | 5 $\frac{3}{4}$ | Togoland . . . | Hon. Walter Rothschild. |
| 27 $\frac{1}{2}$ | 24 | 9 $\frac{1}{2}$ | 10 $\frac{3}{8}$ | Mau Forest, E. Africa . | W. N. McMillan. |
| ♀ 27 $\frac{1}{2}$ | 24 $\frac{1}{8}$ | 7 $\frac{1}{2}$ | 4 $\frac{1}{2}$ | Gold Coast . . . | Hon. Walter Rothschild. |



Head of Eland.

The ELAND (*Taurotragus oryx*).*Du*, Masara.*I-pofo*, Makalaka.*Eland*, Cape Dutch.*Impofo*, Amandebili.*Insefo*, Masubia and Batonga.*Mofo*, Mashona.*Moju*, Galla.*Mpofu*, Barotsi and Ngami.*Ntamu*, Waganda.*Msongo*, Chilala and Chibisa.*U-schefo*, Macuba.*Pakala*, Makua.*Pofo*, Bechuana.*Mpofu*, Swahili.*Böggä*, Sudani.*Musefu*, Chila.

Eland, which are the largest of all antelopes, resemble the bongo in the presence of horns in both sexes ; these forming a close spiral like a screw, with an upward and outward direction. They likewise resemble the bongo in possessing a long, tufted, ox-like tail, but have a distinct dewlap. Female horns are more slender than those of the bulls.

Bulls of the eland stand from 5 feet 9 inches to perhaps as much as 6 feet at the shoulder. They have a large tuft of hair on the forehead, and the horns are of moderate length and stoutness. The typical race (*T. oryx typicus*), which formerly extended from the Cape nearly to the Zambesi, has a uniformly tawny skin, without transverse white stripes or a dark brown band above the knees, and appears to be the largest form. Farther north a dark brown knee-band is assumed by adult bulls; and towards the Zambesi, and thence



Head of Sudani race of Lord Derby's Eland. From a specimen shot by Sir Robert Harvey.

north and east into the heart of the continent, the bulls have not only this dark knee-band, but the body in both sexes is marked by fine vertical white lines. The striped variety is named *T. oryx livingstonei*. In Mashonaland eland show an incomplete white chevron on the face, with a large brown tuft on the forehead; this race, as typified by heads figured in *A Hunter's Wanderings*, may be called *T. o. selousi*. In British East Africa the sides of the forehead are chestnut in place of dark brown; a white chevron is present, and the frontal tuft is small; this race is named *T. o. pattersonianus*. Westward the species ranges into Angola.

Throughout Southern Africa, largely owing to the skin-hunters, eland are now becoming exceedingly scarce; and they have already more or less completely disappeared from Cape Colony, Natal, the Orange River Colony, Griqualand West, and the Transvaal. In the Northern Kalahari, where they exist for a great part of the year without water, large herds still remain. Occasionally female eland develop horns in which the spiral is almost obsolete and the length exaggerated.

A.—ZAMBESI RACE (*T. oryx livingstonei*).

| Length on front of horn. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|-----------------------------|---------------------|------------------|----------------------|--------------------------------|
| 37 | 12 $\frac{3}{4}$ | 23 $\frac{3}{4}$ | Barotsiland . . . | T. G. Davey. |
| 34 $\frac{3}{4}$ | 11 $\frac{1}{2}$ | 27 | B.C. Africa . . . | F. E. F. Jones. |
| 34 | 12 $\frac{3}{4}$ | 22 $\frac{1}{2}$ | N.W. Rhodesia . . . | Major H. W. Wilberforce. |
| 33 $\frac{3}{4}$ | 12 $\frac{3}{4}$ | 19 | N.E. Rhodesia . . . | H. Cookson. |
| 33 | 13 $\frac{1}{2}$ | 14 $\frac{1}{4}$ | N.W. Rhodesia . . . | Major C. L. Graham. |
| 32 $\frac{3}{4}$ | 12 $\frac{1}{2}$ | 21 $\frac{1}{4}$ | Do. . . . | Dr. Ellacombe. |
| 32 $\frac{1}{2}$ | 13 $\frac{3}{4}$ | 22 $\frac{3}{4}$ | Do. . . . | G. Mitchell. |
| 32 $\frac{1}{4}$ | 11 $\frac{3}{4}$ | 15 $\frac{3}{4}$ | Do. . . . | G. F. Watherston. |
| 32 | 13 $\frac{1}{4}$ | 12 $\frac{3}{4}$ | Do. . . . | Major C. A. Sykes. |
| 31 $\frac{3}{4}$ | 12 $\frac{1}{4}$ | 22 $\frac{3}{4}$ | Rhodesia | Hon. Walter Rothschild. |
| 31 $\frac{1}{2}$ | 12 $\frac{3}{4}$ | 12 $\frac{1}{2}$ | Do. . . . | British Museum (F. C. Selous). |
| 31 $\frac{1}{2}$ | 14 | 17 | N.W. Rhodesia . . . | R. C. Forster. |
| 31 $\frac{1}{2}$ | 13 | 15 $\frac{1}{4}$ | Do. . . . | Marquis Pizzardi. |
| 31 $\frac{1}{2}$ | 14 | 22 | Do. . . . | Col. C. Harding. |
| 31 $\frac{1}{4}$ | 13 $\frac{1}{2}$ | 9 | Do. . . . | Dr. Sauer. |
| 31 $\frac{1}{4}$ | 13 $\frac{1}{4}$ | 13 $\frac{1}{2}$ | Do. . . . | Norman B. Smith. |
| 31 $\frac{1}{4}$ | 14 $\frac{3}{4}$ | 14 $\frac{1}{2}$ | S.E. Africa | H. Knieson. |
| 31 | 16 | 14 | Rhodesia | F. C. Selous. |
| 31 | 11 | 19 $\frac{1}{2}$ | S. Africa | W. A. Simpson Hinchliffe. |
| 31 | 12 $\frac{1}{2}$ | 15 $\frac{3}{4}$ | Rhodesia | H. H. Williams. |
| 31 | 12 | 18 | Do. . . . | R. T. Coryndon. |
| 31 | 13 | 15 $\frac{3}{4}$ | Do. . . . | Major J. P. Grenfell. |
| 31 | 12 $\frac{1}{2}$ | 11 $\frac{3}{4}$ | Do. . . . | E. McClellan. |
| 30 $\frac{1}{2}$ | 11 $\frac{1}{2}$ | 20 $\frac{1}{2}$ | B.C. Africa | Capt. F. D. Markham. |
| 30 $\frac{1}{2}$ | 14 $\frac{1}{4}$ | 10 | Rhodesia | Capt. P. R. Bald. |
| 30 $\frac{1}{2}$ | 12 | 7 $\frac{1}{2}$ | Do. . . . | G. Crompton. |
| 30 $\frac{1}{2}$ | 12 $\frac{1}{4}$ | 21 $\frac{1}{4}$ | Do. . . . | L. Messel. |
| 30 $\frac{1}{4}$ | 12 | 16 $\frac{1}{2}$ | South Rhodesia . . . | W. Harcourt Webb. |

| Length on front of horn. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|-----------------------------|---------------------|------------------|-------------------|---------------------------|
| 30 $\frac{1}{4}$ | 11 $\frac{1}{2}$ | 18 | B.C. Africa . . | E. Sharpe. |
| 30 $\frac{1}{4}$ | 13 | 20 | Do. . . | A. R. Andrew. |
| 30 $\frac{1}{4}$ | 12 $\frac{3}{4}$ | 20 $\frac{1}{4}$ | N.W. Rhodesia . . | R. Campbell Heathcote. |
| 30 $\frac{1}{4}$ | 14 $\frac{1}{4}$ | 10 | Do. . . | A. de L. Long. |
| 30 | 13 | 16 $\frac{1}{4}$ | Do. . . | R. A. M'Clymont. |
| 30 | 11 $\frac{1}{2}$ | 22 | Do. . . | Sir Randolph Baker, Bart. |
| 30 | 12 $\frac{1}{2}$ | 21 | Do. . . | Capt. Mackenzie Murray. |
| 30 | 11 $\frac{1}{2}$ | 13 $\frac{1}{2}$ | B.C. Africa . . | C. B. C. Storey. |
| 30 | 14 | 17 $\frac{1}{2}$ | Rhodesia . . . | H. C. da Costa. |
| 30 | 13 | 21 $\frac{3}{4}$ | Do. . . | G. L. Harrison. |

B.—EAST AFRICAN RACE (T. oryx pattersonianus).

| Length, straight line. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|---------------------------|---------------------|------------------|--------------------|--------------------------------|
| 31 $\frac{5}{8}$ | 10 $\frac{1}{4}$ | 25 $\frac{1}{2}$ | East Africa . . | F. J. Jackson. |
| 30 | 12 | 17 $\frac{1}{4}$ | Do. . . | Lady Grizel Hamilton. |
| 29 | 12 $\frac{3}{4}$ | 16 $\frac{1}{4}$ | Do. . . | G. Henry. |
| 28 | 12 | 17 $\frac{3}{4}$ | Do. . . | G. F. Phillips. |
| 28 | 11 | 19 $\frac{1}{2}$ | Do. . . | Lieut.-Col. J. H. Patterson. |
| 27 $\frac{1}{2}$ | 10 | 15 $\frac{3}{4}$ | Tana Valley . . | Major H. De Prée. |
| 27 $\frac{1}{4}$ | 12 $\frac{1}{2}$ | 11 $\frac{1}{2}$ | Do. . . | E. H. Lichfield. |
| 27 $\frac{1}{8}$ | 11 $\frac{1}{4}$ | 23 | East Africa . . | Capt. V. C. de Crespigny. |
| 27 | 13 $\frac{1}{2}$ | 12 $\frac{1}{2}$ | Do. . . | G. G. Longden. |
| 27 | 11 $\frac{1}{2}$ | 13 $\frac{1}{4}$ | Do. . . | W. Neilson. |
| 26 $\frac{3}{4}$ | 10 $\frac{1}{2}$ | 15 $\frac{3}{4}$ | Do. . . | Capt. L. W. Sadlier-Jackson. |
| 26 $\frac{1}{2}$ | 12 | 9 $\frac{1}{4}$ | N. of Machakos . . | E. J. Mardon. |
| 26 $\frac{1}{2}$ | 10 $\frac{1}{2}$ | 13 | East Africa . . | Mrs. A. K. Muir. |
| 26 $\frac{1}{2}$ | 11 $\frac{3}{4}$ | 16 | Do. . . | H. S. Keating. |
| 26 $\frac{1}{2}$ | 12 | 6 $\frac{1}{4}$ | Do. . . | The Master of Belhaven. |
| 26 $\frac{1}{2}$ | 10 $\frac{1}{2}$ | 16 $\frac{1}{4}$ | Do. . . | Major H. B. Dalgety. |
| 26 $\frac{1}{4}$ | 12 | 14 | Do. . . | Gorham Brooks. |
| -26 $\frac{1}{4}$ | 11 $\frac{1}{4}$ | 10 | Tana Valley . . | R. de Goldschmidt. |
| 26 | 11 | 13 $\frac{1}{2}$ | East Africa . . | Capt. W. M. Burrell. |
| -26 | 9 $\frac{3}{4}$ | 14 | Do. . . | E. B. Bronson. |
| 26 | 11 $\frac{3}{4}$ | 10 $\frac{1}{4}$ | Do. . . | Sir Charles Kirkpatrick, Bart. |
| 26 | 12 | 5 $\frac{1}{2}$ | Do. . . | R. J. Cuninghame. |

- Owner's measurements.



Malformed Horns of Cow Eland in the Collection of Major W. Anstruther Gray.

The following are female specimens :—

| Length, straight line. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|---------------------------|---------------------|-----------------|----------------------|--|
| 41 | $7\frac{7}{8}$ | 13 | German East Africa . | Major von Tiedemann. |
| $39\frac{1}{2}$ | 7 | $26\frac{3}{4}$ | ? | Major W. Anstruther Gray. |
| 36 | $7\frac{1}{2}$ | $21\frac{1}{4}$ | ? | P. C. Keytel. |
| $35\frac{3}{8}$ | $7\frac{1}{2}$ | 15 | Angola . . . | C. W. Sharp. |
| $35\frac{5}{8}$ | $8\frac{9}{16}$ | $20\frac{1}{8}$ | Zomba Plain, B.C.A. | Charterhouse Museum (Dr. Percy Rendall). |

— Owner's measurements.

| Length, straight line. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|---------------------------|---------------------|------------------|-------------------|------------------------------|
| 34 | 6 $\frac{3}{4}$ | ... | N.W. Rhodesia . . | R. C. Forster. |
| 32 $\frac{1}{4}$ | 6 $\frac{3}{4}$ | ... | Chobi Valley . . | M. C. Greaves-Bagshawe. |
| 32 $\frac{1}{4}$ | 6 $\frac{3}{4}$ | 5 $\frac{3}{4}$ | South Africa . . | Abe Bailey. |
| 32 $\frac{1}{8}$ | 7 $\frac{1}{8}$ | 8 $\frac{3}{4}$ | ? . . | Mr. Justice Hopley. |
| 32 | 8 | 20 | B.C. Africa . . | Capt. J. S. Brogden. |
| 29 $\frac{1}{4}$ | 7 $\frac{3}{4}$ | 20 | East Africa . . | F. W. Greswolde-Williams. |
| 28 $\frac{3}{4}$ | 7 $\frac{1}{4}$ | 13 $\frac{1}{2}$ | Do. . . | Capt. T. H. Rivers Bulkeley. |
| 25 $\frac{5}{8}$ | 8 | 8 $\frac{1}{2}$ | B.C. Africa . . | G. Crompton. |

C.—MASHONA RACE (*T. oryx selousi*).

| Length, straight line. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|---------------------------|---------------------|------------------|-----------------|---------------|
| ♀ 32 | 9 $\frac{1}{2}$ | 20 $\frac{1}{2}$ | Mashonaland . . | F. C. Selous. |



Frontlet and Horns of Lord Derby's Eland, from the Gambia.

LORD DERBY'S ELAND (*Taurotragus derbianus*).

In this magnificent species the horns are longer and stouter than in the typical eland, and the ears broader. Sub-adult bulls have the forehead chestnut, but a chocolate frontal tuft is developed later; there is an imperfect white chevron below the eyes, the lower part of the face is dark brown; a dark collar bordered below with white occupies the sides of the neck; and the back of the neck carries a dark brown mane. The general colour of the hair is chestnut or rufous in the typical race, but paler in the Sudani race; the number of white body-

stripes being 14 or 15 in the former and about 10 in the latter. Dark knee-bands are present.

Distribution.—The open districts of the interior of Senegambia and Gambia, and thence to the Egyptian Sudan. Possibly the species may grade into the last.

A.—**SENEGAMBIAN RACE** (*T. derbianus typicus*).

| Length, straight line on front of horn. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|---|---------------------|----------------|---------------------|--------------------------------------|
| 42 | 14 | 22½ | French Congo . . . | American National Collection. |
| -40 | 13½ | Single horn | ? | Berlin Museum. |
| -39⅜ | ... | ... | ? | Paris Museum. |
| 34½ | 14½ | 22¾ | Gambia . . . | Sir Edmund G. Loder, Bart. |
| 34 | 12¾ | ... | ? | J. Carr Saunders. |
| -34 | 11½ | 17 | Gambia . . . | Dublin Museum. |
| 33 | 13¾ | 26 | Do. . . . | C. Sharland. |
| 32½ | 12½ | 29⅞ | Do. . . . | British Museum (13th Earl of Derby). |
| 32½ | 9½ | 12¾ | ? | Sir Edmund G. Loder, Bart. |
| 32½ | 13 | 23½ | Gambia . . . | H.R.H. the Duc d'Orléans. |
| 32 | 13 | 24½ | ? | Hon. Walter Rothschild. |
| 31½ | 12½ | 15½ | Gambia . . . | H. C. Goddard. |
| -31 | 11½ | ... | Do. . . . | Sir R. B. Llewelyn. |
| 30⅞ | 10¾ | 26¾ | ? | British Museum (F. W. Reade). |
| ♀ 29½ | 10½ | 13 | Portuguese Guinea . | Vicomte de Thienne. |
| ♀ 25 | 9 | 10¾ | Gambia . . . | H. C. Goddard. |
| ♀ 24½ | 9 | 6½ | Do. . . . | British Museum (F. W. Reade). |

— Owner's measurements.



Skull and Horns of Sudani race of Lord Derby's Eland, in the Collection of Mr. Abe Bailey.

B.—SUDANI RACE (*T. derbianus gigas*).

| Length on straight line on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|---|------------------|------------------|---------------------------|--------------------------------|
| 41 | 13 $\frac{1}{4}$ | 25 $\frac{3}{4}$ | Bahr-el-Ghazal . . | Sir Robert Harvey, Bart. |
| 39 $\frac{1}{2}$ | 12 $\frac{1}{4}$ | 30 $\frac{1}{2}$ | Do. . . | G. Blaine. |
| 39 $\frac{1}{4}$ | 13 | ... | Near Lado, White Nile | Lieut.-Gen. Sir F. R. Wingate. |
| 39 | 14 $\frac{1}{2}$ | 39 $\frac{1}{4}$ | Near Wau, Bahr-el-Ghazal. | British Museum. |
| 39 | 13 $\frac{1}{2}$ | 32 $\frac{3}{4}$ | Bahr-el-Ghazal . . | Hon. Walter Rothschild. |
| 39 | 14 | 29 $\frac{1}{4}$ | Do. . . | Capt. R. J. Collins. |
| 38 $\frac{1}{2}$ | 13 $\frac{3}{4}$ | 19 $\frac{1}{2}$ | Do. . . | Abe Bailey. |
| 38 $\frac{1}{4}$ | 11 $\frac{3}{4}$ | 22 $\frac{3}{4}$ | Do. . . | Major C. A. Wilding. |
| 37 $\frac{3}{4}$ | 14 | 31 $\frac{1}{2}$ | Do. . . | A. F. Williams. |
| 37 $\frac{1}{2}$ | 13 $\frac{3}{4}$ | 28 $\frac{3}{4}$ | Do. . . | Major A. J. B. Percival. |
| 37 $\frac{1}{2}$ | 13 $\frac{3}{4}$ | 35 | Do. . . | Capt. R. B. Airey. |
| 37 | 13 | 26 $\frac{1}{4}$ | Do. . . | Carl Hagenbeck. |
| 36 $\frac{1}{2}$ | 14 | 29 $\frac{1}{2}$ | Do. . . | Capt. G. F. Pridham. |
| 36 $\frac{1}{2}$ | 13 $\frac{1}{4}$ | 33 $\frac{1}{2}$ | Do. . . | Sir Edmund G. Loder, Bart. |
| 36 $\frac{1}{4}$ | 13 | ... | Do. . . | Capt. J. G. A. Massy. |
| 35 $\frac{1}{2}$ | 14 | 34 | Do. . . | Capt. R. B. Airey. |
| ♀ 34 | 9 $\frac{1}{2}$ | 29 $\frac{1}{4}$ | Do. . . | Capt. H. R. Headlam. |
| ♀ 33 $\frac{3}{4}$ | 10 $\frac{1}{4}$ | 16 $\frac{3}{4}$ | Do. . . | Hon. Walter Rothschild. |
| ♀ 33 $\frac{1}{4}$ | 12 | ... | Do. . . | Capt. P. E. Vaughan. |

Measurements of an old bull, shot near Wau, Bahr-el-Ghazal, by Capt. R. J. Collins (horns 39 $\frac{3}{4}$ inches):—

| | |
|---|-----------------------|
| Height just behind centre of shoulder . . . | 5 feet 8 inches |
| Nose to base of tail | 9 " 0 " |
| Girth 6 inches from fore-leg | 7 " 1 $\frac{1}{2}$ " |
| Length of tail | 2 " 3 " |
| Length of body | 6 " 2 " |
| Round centre of neck | 4 " 2 $\frac{1}{2}$ " |



Frontlet and Horns of Count Arpad Teleki's Chamois.

The CHAMOIS (*Rupicapra tragus*).

The chamois does not belong to the antelopes properly so-called, but represents a group connecting the former to a considerable extent with the true goats, one member of the group being indeed commonly designated the Rocky Mountain goat. Most of these ruminants are more or less goat-like in general appearance, having narrow goat-like molar teeth and short or moderately long tails. Their horns, which are black in colour, are, however, quite distinct from those of the goats, being for the most part cylindrical in section, and curving backwards. From the other members of the group the chamois is at once distinguished by the sharp hook formed by the backward curvature of the horns, which rise almost vertically from the head. The colouring is too well known to need description, although attention may be directed to the dark streak running from the eye to the side of the muzzle. Height at shoulder reaching 32 inches; weight of male generally about 65 lbs. (although 125 lbs. has been recorded in one case), that of female from 45 to 50 lbs.

Distribution.—The mountains of Central and Southern Europe, from the Pyrenees to the Apennines and Caucasus, and those of Asia Minor. Chamois vary in colour according to season, but

it seems that some races are darker than others. Several local races are recognised, namely, the true chamois, or gems, of the Alps; the small izard (*R. t. pyrenaica*) of the Pyrenees, nearly allied to which is the pale-coloured Apennine *R. t. ornata*; the Carpathian race, not yet named, is very dark, old bucks being nearly black above. The Caucasian *R. t. caucasica* is distinguished by its relatively short and stout horns and certain features of the bones of the nasal region of the skull; while the light-coloured Trebizond *R. t. asiatica* is likewise distinguished by horn and skull characters. The chamois of the Asturias is stated to be redder than the Pyrenean animal and to indicate another race.

| Length on front curve. | Circumference. | Tip to Tip. | Spread. | Locality. | Owner. |
|--------------------------------|-----------------|------------------|-----------------|------------------------------|---|
| -12 $\frac{3}{4}$ | 13 | when killed | ... | Hungary . . | Baron Donald Schönberg. |
| ♀ 12 $\frac{5}{8}$ | 3 $\frac{1}{4}$ | 5 $\frac{7}{8}$ | ... | Carinthia . . | J. D. Heaton Armstrong. (See illustration, p. 341.) |
| -12 $\frac{1}{4}$ | ... | ... | ... | Hungary . . | C. G. Danford. |
| ¹ -12 $\frac{1}{4}$ | 4 $\frac{1}{8}$ | ... | 7 $\frac{1}{2}$ | Retyezat, Carpathians | Count Arpad Teleki. (See illustration, p. 337.) |
| 12 $\frac{1}{8}$ | 3 $\frac{1}{2}$ | 5 $\frac{3}{8}$ | 6 $\frac{1}{8}$ | Branu, Carpathians | C. G. Danford. |
| -12 | 4 | ... | ... | Hinter Riss . . | H.R.H. the Duke of Saxe-Coburg and Gotha. |
| -12 | ... | ... | ... | Tyrol (?) . . | Count Arco. |
| -12 | ... | ... | ... | Carpathians . . | Count Zdenko Kinsky. |
| -11 $\frac{1}{2}$ | ... | ... | ... | Retyezat . . | Count Erbach. |
| -11 $\frac{1}{2}$ | 3 $\frac{5}{8}$ | 6 $\frac{7}{8}$ | ... | Albreis Morteratch, Engadine | A. E. Pease. |
| 11 $\frac{3}{8}$ | 3 $\frac{5}{8}$ | 7 $\frac{5}{8}$ | ... | S. Austria . . | J. Hamilton Leigh. |
| 11 $\frac{3}{8}$ | 3 $\frac{5}{8}$ | 5 $\frac{7}{16}$ | ... | Do. . . | R. K. Cross. |
| 11 $\frac{1}{4}$ | 3 $\frac{1}{2}$ | 6 $\frac{1}{2}$ | ... | ? . . | Col. Howard. |
| ♀ -11 $\frac{1}{4}$ | ... | 4 $\frac{1}{8}$ | ... | Retyezat . . | Baron A. Nopcsa. |
| -11 $\frac{1}{16}$ | ... | ... | ... | Do. . . | G. von Kendeffy. |
| 11 | 3 $\frac{1}{2}$ | 4 $\frac{5}{16}$ | ... | Transylvania . . | F. C. Selous. |
| 11 | 3 $\frac{3}{4}$ | 7 $\frac{1}{2}$ | ... | Do. . . | St. George Littledale. |
| -11 | 3 $\frac{3}{4}$ | 5 $\frac{1}{2}$ | ... | ? . . | Count John of Meran. |
| -10 $\frac{1}{16}$ | 3 $\frac{5}{8}$ | 4 | ... | Tyrol . . | Sir Edmund G. Loder, Bart. |
| -10 $\frac{7}{8}$ | 3 $\frac{1}{4}$ | 6 $\frac{7}{8}$ | ... | Bulgaria . . | Dr. Albert von Stephani. |
| 10 $\frac{3}{4}$ | 3 $\frac{1}{2}$ | 4 $\frac{5}{16}$ | ... | Tyrol . . | Sir Edmund G. Loder, Bart. |
| -10 $\frac{1}{16}$ | ... | 5 $\frac{1}{2}$ | ... | Hinter Riss . . | Sir Clement Hill. |

- Owner's measurements.

¹ 12 $\frac{1}{2}$ lbs. not clean, and horns now measure 11 $\frac{1}{4}$.

| | Length on front curve. | Circum- ference. | Tip to Tip. | Spread. | Locality. | Owner. |
|-----------------|------------------------------|---------------------|-----------------|---------|-------------------|---------------------------------|
| | 10 $\frac{1}{4}$ | 3 $\frac{1}{2}$ | 7 $\frac{1}{2}$ | ... | Herzegovina . . . | Eberhard Hollinek. |
| ♀ | 10 $\frac{1}{4}$ | ... | 5 $\frac{1}{4}$ | ... | Retyezat . . . | C. G. Danford. |
| | 10 $\frac{1}{4}$ | 3 | 4 $\frac{1}{4}$ | ... | Austria . . . | M. D. V. Holt. |
| ♀ | 10 $\frac{1}{2}$ | 3 | 5 $\frac{1}{4}$ | ... | Do. . . | Hon. Walter Rothschild. |
| ♀ | 10 $\frac{1}{2}$ | ... | ... | 7 | S. Austria . . . | R. K. Cross. |
| | 10 $\frac{1}{2}$ | 3 $\frac{1}{2}$ | 5 $\frac{1}{8}$ | ... | ? . . . | Rev. J. F. Glossop. |
| | 10 $\frac{1}{2}$ | 3 $\frac{1}{2}$ | 5 $\frac{3}{8}$ | ... | Austria . . . | H.R.H. the Duke of Braganza. |
| | 10 $\frac{1}{2}$ | 2 $\frac{3}{4}$ | 5 | ... | ? . . . | Count John of Meran. |
| | 10 $\frac{1}{2}$ | 3 $\frac{1}{2}$ | 4 $\frac{1}{4}$ | ... | Austria . . . | T. V. Holt. |
| | 10 $\frac{1}{2}$ | 3 $\frac{1}{4}$ | ... | ... | Do. . . | L. R. Rate. |
| ♂ | 10 $\frac{1}{2}$ | 3 $\frac{1}{4}$ | 6 $\frac{1}{4}$ | ... | S. Austria . . . | J. Hamilton Leigh. |
| | 10 $\frac{1}{4}$ | 3 $\frac{1}{2}$ | 3 $\frac{3}{8}$ | ... | Do. . . | J. Kenneth Foster. |
| | 10 $\frac{1}{4}$ | 3 $\frac{1}{2}$ | 5 $\frac{1}{4}$ | ... | ? . . . | E. N. Buxton. |
| | 10 $\frac{1}{4}$ | 3 | 5 $\frac{3}{8}$ | ... | ? . . . | Count Palffy. |
| | 10 $\frac{1}{4}$ | 3 $\frac{1}{4}$ | 5 $\frac{1}{4}$ | ... | Austria . . . | Sir Robert Harvey, Bart. |
| ♂ | 10 $\frac{1}{4}$ | ... | ... | ... | Grindelwald . . . | F. A. Labouchere. |
| | 9 $\frac{1}{2}$ | 3 $\frac{1}{2}$ | 3 | ... | ? . . . | Norman Lamont. |
| | 9 $\frac{1}{4}$ | 3 $\frac{1}{2}$ | 4 $\frac{1}{4}$ | ... | ? . . . | Capt. W. Waring. |
| | 9 $\frac{1}{4}$ | 2 $\frac{3}{4}$ | 6 $\frac{1}{2}$ | ... | Pyrenees . . . | D. Davies. |
| | 9 $\frac{1}{4}$ | 3 $\frac{1}{4}$ | 3 | ... | W. Caucasus . . . | St. George Littledale. |
| | 9 $\frac{1}{2}$ | 3 | 3 $\frac{1}{2}$ | ... | Gerlos . . . | Hon. M. W. Elphinstone. |
| | 9 $\frac{1}{2}$ | 2 $\frac{1}{2}$ | 5 | ... | ? . . . | P. H. Thomas. |
| ♀ | 9 | 3 | 5 $\frac{1}{4}$ | ... | Pyrenees . . . | Sir Victor Brooke's Collection. |
| ♀ | 9 | 3 $\frac{1}{2}$ | 2 $\frac{1}{2}$ | ... | Caucasus . . . | Rhys Williams. |
| S $\frac{1}{4}$ | 9 | 3 | 3 | ... | Do. . . | Prince E. Demidoff. |
| S $\frac{1}{2}$ | 9 | 3 | 3 $\frac{1}{4}$ | ... | N. Spain . . . | Abel Chapman. |

- Owner's measurements.



The best Chamois Heads shot by His Majesty the Emperor of Austria.

The following are the best specimens in the collection of His Imperial Majesty the Emperor of Austria, who between 1849 and 1902 shot 1991 chamois:—

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Date. |
|------------------------|-----------------|-----------------|-------------------|--------------------|
| ♀ -11 $\frac{1}{4}$ | 3 $\frac{3}{8}$ | 6 $\frac{3}{8}$ | Salzkammergut . . | July 26, 1889. |
| -11 | 3 $\frac{3}{8}$ | 5 $\frac{1}{4}$ | Do. . . | December 10, 1859. |
| 10 $\frac{1}{4}$ | 3 $\frac{3}{4}$ | 4 $\frac{7}{8}$ | Do. . . | „ 28, 1868. |
| -10 $\frac{1}{2}$ | 3 $\frac{7}{8}$ | 4 $\frac{7}{8}$ | Do. . . | July 31, 1885. |
| 10 $\frac{3}{4}$ | 3 $\frac{3}{4}$ | 5 $\frac{1}{8}$ | Do. . . | November 10, 1870. |
| -10 $\frac{3}{4}$ | 3 $\frac{7}{8}$ | 4 $\frac{7}{8}$ | Do. . . | July 31, 1885. |
| γ 9 $\frac{1}{2}$ | 2 $\frac{3}{4}$ | 7 $\frac{1}{2}$ | Do. . . | „ 10, 1886. |
| 8 $\frac{1}{2}$ | 3 $\frac{1}{4}$ | 8 $\frac{1}{4}$ | Do. . . | August 1, 1885. |

- Owner's measurements.



Horns of Chamois. Shot by Mr. J. D. Heaton Armstrong.



Grey Himalayan Goral.
Photographed by the Duchess of Bedford.

HIMALAYAN and BURMESE GORALS (*Urotragus goral*, etc.).

Goral, W. Himalaya. *Pji*, *Par*, *Rai*, *Rom*, Kashmiri.
Sahari, *Sarr*, Sutlej Tribes.

The gorals are near relatives of the serows, from which they may be distinguished by their generally smaller size, shorter horns, and absence of face-glands, as well as by certain differences in the conformation of the skull. The horns curve regularly backwards, are conical in form, and marked by small irregular ridges for the greater part of their length. The hair is somewhat rough and shaggy, and the tail considerably longer than in the chamois. Height at shoulder from 26 to 28 inches; weight from 58 to 63 lbs.

It has been proposed to transfer the name *Nemorhædus* to the gorals and to employ *Capricornis* for the serows (p. 345); and also to apply the name *goral* to *bedfordi*, and designate the former *hodgsoni*. The following three gorals occur in the Indo-Burmese countries:—

1. *Urotragus goral*.—Colour rufous brown, with a white patch on the throat and chin, a black dorsal stripe and tail, and a black stripe down the front of each leg. Horns comparatively straight, and not heavily ringed. Eastern Himalaya.

2. *Urotragus bedfordi*.—Colour yellowish grey-fawn suffused with blackish, the light throat-patch pure white and extending on to the cheeks, no distinct dorsal stripe, a dark streak on muzzle; base of tail and knees blackish, the rest of the legs being fawn. Horns more curved and more heavily ringed than in the last. Western and part of Eastern Himalaya.

3. *Urotragus cinereus*.—Colour brownish grey-fawn suffused with brown; throat-patch small and yellow; no stripe on muzzle or back; tail and back of legs dark brown, rest of legs rufous fawn. Horns very small. Sze-chuen to Upper Burma; the Burmese race is distinguished as *U. c. evansi*.

| Length on front curve. | Girth. | Tip to Tip. | Locality. | Owner. |
|------------------------|----------------|-----------------|------------------------|--|
| $-9\frac{1}{8}$ | $3\frac{3}{4}$ | $4\frac{5}{16}$ | Near Musuri . . . | H. Simons. |
| $-8\frac{3}{4}$ | $3\frac{3}{4}$ | 3 | Musuri . . . | V. A. Mackinnon. |
| $8\frac{5}{8}$ | $3\frac{3}{4}$ | $1\frac{1}{2}$ | Kishtwar . . . | P. F. Hadow. |
| $8\frac{1}{2}$ | ... | ... | Bissahir . . . | Lieut.-Col. A. E. Ward. |
| $8\frac{1}{4}$ | $3\frac{7}{8}$ | $1\frac{3}{4}$ | Gurhwal . . . | Capt. D. L. R. Lorimer. |
| $-8\frac{1}{8}$ | $3\frac{1}{2}$ | ... | ? | Col. J. Biddulph. |
| -8 | ... | ... | Chamba . . . | Major C. B. Vandeleur. |
| 8 | $3\frac{3}{4}$ | $3\frac{1}{8}$ | Do. . . . | Major C. Levita. |
| $7\frac{7}{8}$ | $3\frac{3}{4}$ | 3 | Do. . . . | Capt. R. A. C. Murray. |
| $-7\frac{7}{8}$ | $3\frac{3}{8}$ | $3\frac{5}{16}$ | Do. . . . | D. Cameron. |
| $-7\frac{7}{8}$ | 4 | $2\frac{3}{8}$ | Near Musuri . . . | Capt. J. T. C. Murray. |
| $7\frac{3}{4}$ | $3\frac{3}{4}$ | ... | Do. . . . | Col. C. T. M ⁴ M. Kavanagh. |
| $7\frac{5}{8}$ | $3\frac{3}{4}$ | $3\frac{1}{2}$ | ? | British Museum (Hume Collection). |
| $7\frac{1}{2}$ | 3 | $2\frac{3}{4}$ | Near Musuri . . . | A. O. Hume. |
| $7\frac{1}{2}$ | $3\frac{3}{4}$ | 3 | Do. . . . | R. Stephens. |
| $7\frac{7}{16}$ | $3\frac{1}{2}$ | $2\frac{3}{4}$ | Chamba . . . | Major A. H. Ogilvy Spence. |
| $7\frac{3}{8}$ | $3\frac{7}{8}$ | $3\frac{1}{2}$ | Kishtwar . . . | P. B. Vander Byl. |
| $7\frac{3}{8}$ | 4 | $5\frac{1}{8}$ | Garhwal . . . | Major L. W. S. Oldham. |
| $7\frac{3}{8}$ | $3\frac{3}{4}$ | $3\frac{5}{8}$ | Jhelam Valley, Kashmir | Major P. H. G. Powell-Cotton. |
| $7\frac{1}{4}$ | 3 | 3 | Chamba . . . | Major F. W. H. Walshe. |
| $7\frac{1}{4}$ | $3\frac{3}{8}$ | $2\frac{1}{8}$ | Do. . . . | Capt. F. Pope. |
| $7\frac{1}{8}$ | $3\frac{1}{4}$ | $2\frac{1}{2}$ | Do. . . . | Sir Edmund G. Loder, Bart. |
| $7\frac{1}{8}$ | 4 | $2\frac{3}{4}$ | ? | Capt. M. E. D. Hepenstat. |
| 7 | $2\frac{3}{4}$ | $3\frac{3}{4}$ | ? | Major J. A. Orr-Ewing. |
| 7 | $3\frac{1}{4}$ | $3\frac{3}{8}$ | ? | H. Whitaker. |

- Owner's measurements.

| Length on front curve. | Girth. | Tip to Tip. | Locality. | Owner. |
|------------------------|------------------|----------------|---------------|--------------------------|
| 7 | $3\frac{11}{16}$ | 4 | ? | W. A. Conduitt. |
| 7 | $3\frac{3}{4}$ | $3\frac{7}{8}$ | ? | Duke of Bedford. |
| 7 | $3\frac{11}{16}$ | ... | Chamba . . . | Major G. S. Rodon. |
| 7 | $3\frac{5}{8}$ | 4 | Do. . . . | Col. H. D. Olivier. |
| 7 | $3\frac{3}{8}$ | $2\frac{1}{8}$ | Kashmir . . . | Sir Robert Harvey, Bart. |
| 7 | $3\frac{3}{8}$ | $2\frac{5}{8}$ | Do. . . . | J. H. Phelps. |
| ♀ 7 | $2\frac{1}{4}$ | 2 | ? | Major F. W. H. Walshe. |

CHINESE GORAL.

Gni Lu of Chinese.

| Species. | Collected by | Length on front curve. | Girth. | Tip to Tip. | Locality. | Owner. |
|---------------------------|---------------|-------------------------------------|----------------------------------|----------------------------------|---------------------|------------------------|
| <i>Urotragus edwardsi</i> | Abbé A. David | $8\frac{11}{16}$ $8\frac{5}{16}$ | $7\frac{1}{2}$ $7\frac{1}{8}$ | 4 2 | Moupin, Sze-chuen | Paris Museum. |
| .. <i>caudatus</i> | Do. | $6\frac{5}{16}$ $6\frac{1}{4}$ | $3\frac{11}{16}$ 4 | $3\frac{1}{2}$ $3\frac{1}{2}$ | North of Pekin ? | Do. British Museum. |
| .. <i>cinereus</i> | Do. | $7\frac{1}{2}$ | $3\frac{1}{8}$ | $3\frac{5}{16}$ | Sze-chuen . | Paris Museum. |
| .. <i>griseus</i> | Do. | $4\frac{11}{16}$ | $3\frac{1}{8}$ | $2\frac{3}{8}$ | Do. . | Do. |

JAPANESE SEROW (*Nemorhædus crispus*).

A rather small species of serow with a coat of long grey hair.

Distribution.—The southern islands of Japan; an allied species (*N. swinhoei*) inhabiting the island of Formosa.

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|----------------|----------------|-------------|----------------------------|
| ~7 | 4 | $3\frac{7}{8}$ | Japan . . . | Sir Edmund G. Loder, Bart. |
| $6\frac{1}{4}$ | $3\frac{1}{4}$ | $3\frac{3}{4}$ | Do. . . . | Imperial Museum, Vienna. |
| $5\frac{1}{4}$ | $3\frac{1}{8}$ | $3\frac{1}{8}$ | Do. . . . | British Museum. |
| $4\frac{1}{4}$ | 3 | $3\frac{1}{4}$ | Do. . . . | E. L. Fletcher. |

- Owner's measurements.



Skull and Horns of Himalayan Serow (Mr. Hume's record specimen).

The SEROW (*Nemorhædus sumatrensis*).

Serow, serowa of Gurhwal and

Aimu, Kumaon.

Himalaya.

Jungal, Kangra.

Ramu-Halj, Sàlàbhir.

Goa, Chamba.

Yamu, Kulu.

Serows are clumsily built ruminants generally larger than gorals, with face-glands and longer horns. The ears are long; the hair is coarse, rather thin, and elongated into a crest from the nape to the withers; the under fur found in the gorals being usually absent. In the typical species the general colour of the upper-parts is normally black or dark grey, with a grizzled appearance, owing to the whitish

bases of the hairs; the under-parts, shoulders, and thighs being rusty red. There is, however, great local variation; some races being wholly or mainly rufous and others black, while the lower portion of the legs may be white or rufous or a mixture of both. The form of the skull also differs. Height at shoulder from about 34 to 38 inches. Weight, 120 to 190 lbs.

Distribution.—Typically from Sumatra, but ranging from Yunnan and Sze-chuen to the Eastern Himalaya, occurring throughout the elevated tracts of Assam, Burma, Siam, and the Malay Peninsula. In the Sumatran race the limbs are wholly rusty; in the Darjiling *N. s. jamrachi* the lower portions of the legs are mingled rufous and white, while in the Nepalese *N. s. bubalinus* they are white. The Chamba *N. s. rodoni* is dark, with under-fur; but in the Kashmiri *N. s. humei* the head is rufous brown, and in the Arakan *N. s. rubidus* bright rufous. The Malay *N. s. swettenhami* and *N. s. robinsoni* are almost wholly black, as is the Sze-chuen *N. s. milne-edwardsi*. In *rubidus* the nasal bones are very short; in *swettenhami* they are longer and narrower, and the profile of the skull is more vaulted.

A.—EASTERN RACES.

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|-----------------|-----------------|----------------------|-----------------------------------|
| 10 $\frac{1}{8}$ | 5 | 1 $\frac{7}{8}$ | Burma . . . | O. F. Wheeler-Cuffe. |
| 10 $\frac{1}{2}$ | 6 | 5 | Do. . . . | A. L. Bacon. |
| -10 $\frac{1}{2}$ | 5 $\frac{1}{2}$ | 5 | Ta-chi-lu, China . . | M. Mitchell. |
| -10 $\frac{1}{2}$ | 5 $\frac{1}{4}$ | ... | Upper Burma . . . | H. Shaw Dunn. |
| -9 $\frac{1}{2}$ | 5 | 5 $\frac{1}{2}$ | Arakan Hills . . . | A. O. Hume. |
| 9 $\frac{3}{4}$ | 4 $\frac{1}{2}$ | 4 $\frac{3}{4}$ | Burma | British Museum (Hume Collection). |
| -9 $\frac{1}{4}$ | 5 | 4 $\frac{1}{2}$ | Do. | H. L. P. Walsh. |
| 9 | 5 | 2 | Sumatra | British Museum (Hume Collection). |
| -9 | 5 | 5 | Burma | Lieut.-Col. G. H. Evans. |
| ♀ 9 | 4 $\frac{1}{2}$ | ... | Upper Burma . . . | H. Shaw Dunn. |
| -8 $\frac{9}{10}$ | 5 $\frac{1}{2}$ | 4 $\frac{1}{4}$ | Manipur | Major H. S. Wood. |
| 8 $\frac{7}{8}$ | 5 $\frac{1}{4}$ | ... | ? | H. E. Stephens. |
| 8 $\frac{3}{4}$ | 5 $\frac{1}{2}$ | 4 $\frac{3}{4}$ | Muleyit | A. O. Hume. |
| -8 $\frac{3}{4}$ | 4 $\frac{7}{8}$ | 2 $\frac{1}{8}$ | Perak | Perak Museum. |
| 8 $\frac{3}{4}$ | 5 $\frac{1}{4}$ | 3 $\frac{1}{2}$ | Upper Burma . . . | H. O. Whittall. |
| 8 $\frac{3}{4}$ | 5 | 3 $\frac{1}{4}$ | Do. | Capt. L. Trevor Goff. |

- Owner's measurements.

B.—WESTERN RACES.

| Length on front curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|---------------------------|---------------------|-----------------|------------------------|---|
| 12 $\frac{1}{4}$ | 6 $\frac{1}{2}$ | 2 $\frac{3}{4}$ | Garhwal | A. O. Hume. (See illustration.) |
| 12 | . | ... | Himalaya | Lieut.-Col. A. E. Ward. |
| 10 $\frac{7}{8}$ | 5 | 4 | " | V. A. Mackinnon. |
| 10 $\frac{1}{2}$ | 5 $\frac{5}{8}$ | 3 $\frac{1}{2}$ | Garhwal | A. P. Davis. |
| 10 $\frac{1}{2}$ | 5 | 3 $\frac{1}{2}$ | Chamba | H. H. The Raja of Chamba. |
| ♀ 10 $\frac{1}{4}$ | 5 $\frac{3}{4}$ | 3 $\frac{1}{4}$ | Kumaon | Lieut.-Gen. Sir R. Hart. |
| 9 $\frac{3}{4}$ | 5 $\frac{1}{8}$ | 6 | Kashmir | British Museum (R. Lydekker). |
| 9 $\frac{5}{8}$ | 5 $\frac{1}{4}$ | 4 | " | Col. C. M. Haggard. |
| 9 $\frac{1}{2}$ | 5 $\frac{1}{2}$ | 4 | " | K. C. Zarzhetsky. |
| 9 $\frac{1}{2}$ | 5 $\frac{5}{8}$ | 4 $\frac{3}{4}$ | Kashmir | St. George Littledale. |
| 9 $\frac{1}{2}$ | 5 $\frac{1}{4}$ | 3 | " | Major G. S. Rodon. |
| 9 $\frac{1}{2}$ | 4 $\frac{7}{8}$ | 3 $\frac{1}{4}$ | Nepal | British Museum (B. H. Hodgson). |
| 9 $\frac{1}{2}$ | 5 $\frac{5}{8}$ | 3 $\frac{3}{4}$ | " | Sir Edmund G. Loder, Bart. |
| 9 $\frac{3}{4}$ | 5 $\frac{1}{4}$ | 4 | Sind Valley, Kashmir . | Major P. H. G. Powell-Cotton. |
| 9 $\frac{5}{8}$ | 5 $\frac{3}{4}$ | 3 $\frac{7}{8}$ | Chamba | Major C. W. Tribe. |
| 9 $\frac{1}{4}$ | 5 | 3 $\frac{1}{2}$ | Do. . . . | Capt. H. Meynell. |
| 9 $\frac{1}{4}$ | 4 $\frac{1}{2}$ | 3 | Do. . . . | Major the Hon. A. Hamilton- Russell. |
| 9 $\frac{1}{4}$ | 4 $\frac{3}{4}$ | 4 $\frac{1}{4}$ | Do. . . . | H. L. P. Walsh. |
| 9 $\frac{1}{4}$ | 5 $\frac{1}{4}$ | . | Do. . . . | Capt. L. R. Hogge. |
| 9 $\frac{1}{4}$ | 5 $\frac{1}{4}$ | 3 | Do. . . . | Capt. W. B. Baker. |

- Owner's measurements.

The **WHITE-MANED SEROW** (*Nemorhædus argyrochætes*).

A large species of a mingled rufous grey colour, with more or less white in the mane and the thighs, and whole of the limbs rufous.

Distribution.—Sze-chuen.

| Length on front curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|---------------------------|---------------------|-------------|-----------------|---|
| $9\frac{9}{10}$ | $5\frac{3}{4}$ | 4 | Sze-chuen . . . | British Museum (the late J. W. Brooke). |
| $9\frac{1}{2}$ | $7\frac{1}{2}$ | 4 | Do. . . . | Paris Museum. |



Head of Serow.



Skull and Horns of Takin.

The TAKIN (*Budorcas taxicolor*).

Probably also akin to the musk-ox, this ruminant is a relative of the serows. It is heavily built, with stout limbs, large lateral hoofs, a short tail, a convex profile, and an almost completely hairy muzzle. The horns, which are large, massive, and bent somewhat after the fashion of those of the gnu, curve at first outwards and somewhat downwards, and then bend abruptly upwards about the middle of their length. Height at shoulder about $3\frac{1}{2}$ feet. Horns are present in both sexes, as in the serows and gorals, those of females being smaller than those of males. The general colour is cigar-brown, with a light saddle, and passing into blackish on the head, limbs, and underparts, with a continuous dark dorsal streak.

Distribution.—Typically the Mishmi Hills on the northern frontier of Assam, but represented by the small-horned *B. t. whytei* in Bhutan.

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|----------------|-------------|--------------|-----------------------------------|
| -25 | 13 | 11½ | Mishmi Hills | F. J. Needham. |
| -24½ | ... | ... | Do. | Col. J. Biddulph. |
| -24½ | 12½ | 12¾ | Do. | Indian Museum. |
| 22½ | 11¾ | 12 | Do. | Hon. Walter Rothschild. |
| 22¾ | 10¾ | 14¾ | Assam | British Museum. |
| 22¾ | 11 | 12 | Mishmi Hills | Duke of Bedford. |
| -22 | 12½ | 12½ | Do. | Bombay Natural History Society. |
| 22 | 11¾ | 11 | Do. | N. Williamson. |
| 21 | 12 | 13½ | Do. | A. J. Walter. |
| 20¾ | 11¾ | 11¾ | Assam | British Museum (Hume Collection). |
| 20¾ | 11¾ | 12½ | Mishmi Hills | A. O. Hume. |
| 20½ | 12 | 12 | Do. | Lord Osborne Beaucherk. |
| 20½ | 11¾ | 10 | Do. | W. Nuttall. |
| ♀ 15 | 9 | 8½ | Do. | Lord Osborne Beaucherk. |

The SZE-CHUEN TAKIN (*Budorcas tibetanus*).

Typically the general colour of the fore-quarters is bright orange, passing into greyish behind and beneath, with the ears and lower part of face black, and the dorsal stripe stopping at withers. In a second phase the orange area is replaced by dirty white and pale grey. Horns relatively long and slender.

Distribution.—Sze-chuen, Kansu, and Eastern Tibet.

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|----------------|-------------|---------------|-------------------------------|
| 20½ | 11½ | 11¾ | Kansu, China | Hon. Walter Rothschild. |
| 19¾ | 12½ | 12½ | Tibet | Hon. Walter Rothschild. |
| -19¾ | 11½ | 13¾ | Do. | Paris Museum (Abbé A. David). |
| -18½ | 12 | 16 | Nr. Ta-chi-lu | M. Mitchell. |
| 15 | 9 | 8½ | Tibet | Imperial Museum, Vienna. |

— Owner's measurements.



Head of Rocky Mountain Goat.

The ROCKY MOUNTAIN GOAT (*Oreamnus montanus*).(Also known as *Haploceros montanus*.)

This is one of the very few mammals that are permanently white or whitish at all seasons ; and although commonly termed a goat, really belongs to the same group as the serows, which it closely resembles in the form and colour of the horns. In winter the hair is very long and pure white in colour ; along the back it is erect, and much elongated on the withers and haunches, so as to give to the animal the appearance of possessing a pair of humps. The summer coat is comparatively short, and has a yellowish tinge. There is a black gland, sometimes as large as half an orange, at the back of the base of each horn. Height at shoulder just short of 3 feet ; weight about 300 lbs. Several local races have been named.

Distribution.—North America ; throughout the Rocky Mountains, from the Salmon River, Idaho, as far north as lat. $63^{\circ} 30'$.

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|----------------|-------------|------------------|-------------------------|
| —11½ | ... | ... | British Columbia | Clive Phillipps-Wolley. |
| ♀ —11½ | 4½ | 6½ | Montana | G. L. Harrison. |

· Owner's measurements.

RECORDS OF BIG GAME

| Length on front curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|---------------------------|---------------------|----------------|----------------------|----------------------------|
| $-10\frac{7}{8}$ | 7 | ... | Cassiar . . . | Col. Max C. Fleischmann. |
| $-10\frac{1}{2}$ | $5\frac{3}{4}$ | ... | Montana . . . | Walter James. |
| $10\frac{1}{4}$ | 6 | $6\frac{3}{4}$ | Do. . . . | D. Davies. |
| $10\frac{1}{4}$ | $5\frac{1}{4}$ | $5\frac{1}{2}$ | British Columbia . | R. Rankin. |
| $10\frac{1}{4}$ | 6 | 7 | Do. . . . | H. B. Tate. |
| $-10\frac{5}{16}$ | ... | $4\frac{7}{8}$ | Do. . . . | Madison Grant. |
| $10\frac{1}{8}$ | 5 | $6\frac{1}{8}$ | ? | E. N. Buxton. |
| $10\frac{1}{8}$ | $5\frac{3}{8}$ | $7\frac{1}{8}$ | British Columbia . | M. Egerton. |
| $\varphi - 10\frac{1}{8}$ | $4\frac{1}{4}$ | ... | Do. . . . | Capt. A. Egerton. |
| $10\frac{1}{8}$ | $5\frac{1}{4}$ | $7\frac{3}{4}$ | Do. . . . | Wilson Potter. |
| 10 | $5\frac{3}{8}$ | $6\frac{3}{8}$ | Do. . . . | J. V. Colby. |
| $9\frac{7}{8}$ | $5\frac{3}{8}$ | $5\frac{1}{4}$ | Do. . . . | Major C. S. Cumberland. |
| $9\frac{3}{4}$ | $5\frac{3}{4}$ | $6\frac{3}{4}$ | Do. . . . | Viscount Lascelles. |
| $9\frac{3}{4}$ | $5\frac{1}{2}$ | $6\frac{1}{4}$ | N.W. Territories . | S. Ratcliff. |
| $9\frac{3}{4}$ | $5\frac{1}{4}$ | 6 | Do. . . . | H.R.H. the Duc d'Orléans. |
| $9\frac{3}{4}$ | $5\frac{1}{4}$ | $6\frac{1}{4}$ | Cassiar | W. A. Conduitt. |
| $9\frac{3}{4}$ | $5\frac{1}{4}$ | $6\frac{1}{8}$ | Do. . . . | Sir Edmund G. Loder, Bart. |
| $9\frac{1}{2}$ | $4\frac{3}{4}$ | $6\frac{3}{4}$ | British Columbia . | P. N. Graham. |
| $9\frac{1}{2}$ | $4\frac{3}{4}$ | $8\frac{3}{4}$ | Do. . . . | R. M. Spence. |
| $9\frac{1}{2}$ | $5\frac{1}{2}$ | $6\frac{1}{4}$ | Alaska | St. George Littledale. |
| $9\frac{1}{2}$ | $4\frac{1}{2}$ | ... | North America . . | J. D. Cobbold. |
| $9\frac{1}{2}$ | $5\frac{3}{4}$ | $7\frac{1}{4}$ | Cassiar | P. N. Graham. |
| $9\frac{1}{2}$ | $5\frac{1}{4}$ | $6\frac{3}{8}$ | East Kutenay, B.C. . | A. E. Butter. |
| $9\frac{1}{2}$ | 6 | 5 | British Columbia . | W. Neilson. |
| $9\frac{1}{2}$ | $5\frac{3}{4}$ | $5\frac{1}{4}$ | Do. . . . | H. F. Wallace. |

- Owner's measurements.



Head of Greenland Musk-Ox.

The MUSK-OX (*Ovibos moschatus*).

In spite of its name, this Arctic ruminant has no near affinity with the members of the ox tribe, the cheek-teeth being more like those of the sheep and goats, the muzzle, except for a small strip between the nostrils, hairy, and the tail reduced to a mere stump concealed among the long hair of the hind-quarters. On the other hand, the resemblance to the sheep is by no means close, the horns, which in old males nearly meet in the middle line of the forehead, being of a totally different form and structure, and the skull likewise very distinct. Probably the genus is more or less nearly related to the serow and the takin. In the males the horns are much flattened and expanded at the bases, after which they are bent suddenly down behind the eyes, to curve upwards again at the tips. In the females they are much smaller, less expanded, and not approximated at their bases. In both sexes their texture is coarse and fibrous, and the colour yellow. The long coat of dark brown hair depending from the back and sides like a mantle affords an adequate protection against the rigors of an Arctic winter; and the broad spreading hoofs, with hair on their under surface, give a firm

foothold on snow and ice. Several races are known, including the typical Canadian and the Greenland *O. moschatus wardi*. The latter is characterised by the presence of a certain amount of white on the forehead and the smaller expansion of the horns. Height at shoulder about 4 feet. Weight of a bull (piecemeal), 579 lbs. (D. T. Hanbury).

Distribution.—Arctic America, approximately north and east of a line drawn from the mouth of the Mackenzie River to Fort Churchill on Hudson Bay, Greenland, and Grinnell-land, in lat. $32^{\circ} 27'$; approximate southern limit, lat. 40° N.

A.—CANADIAN RACE (*O. moschatus typicus*).

| Length on outside curve. | Breadth of palm. | Tip to Tip. | Locality. | Owner. |
|-----------------------------|---------------------|------------------|--------------------------------------|---|
| -33 | $12\frac{1}{2}$ | $24\frac{1}{2}$ | Barren Grounds of Northern Canada | N. J. Dinnen. |
| -30 $\frac{1}{4}$ | $13\frac{3}{4}$ | 30 $\frac{1}{4}$ | ? | W. W. Hart. |
| -28 $\frac{3}{4}$ | $13\frac{1}{2}$ | $23\frac{3}{4}$ | ? | G. L. Harrison. |
| 27 $\frac{3}{4}$ | 10 | $27\frac{1}{2}$ | Barren Grounds . . | David T. Hanbury. |
| 27 $\frac{1}{2}$ | 10 | $23\frac{1}{2}$ | Do. . . | H. Darrell. |
| -27 $\frac{1}{2}$ | $11\frac{3}{4}$ | 23 | Do. . . | Caspar Whitney. |
| 27 $\frac{1}{4}$ | $12\frac{1}{2}$ | 27 | Do. . . | Earl of Lonsdale. |
| -27 $\frac{1}{4}$ | $10\frac{5}{8}$ | $27\frac{1}{2}$ | Do. . . | Imperial Museum, Vienna. |
| 26 $\frac{7}{8}$ | 11 | 27 | Do. . . | American National Collection (Warburton Pike). |
| 26 $\frac{3}{4}$ | $12\frac{3}{8}$ | ... | Arctic America . . | British Museum (J. Rae). |
| 24 $\frac{3}{4}$ | 11 | $25\frac{1}{2}$ | Barren Grounds . . | Warburton Pike. |
| 24 $\frac{1}{4}$ | $7\frac{1}{2}$ | 19 | Do. . . | J. Talbot Clifton. |
| 24 $\frac{1}{4}$ | $10\frac{1}{2}$ | 26 | Do. . . | Hon. Walter Rothschild. |
| 24 | $9\frac{3}{4}$ | $23\frac{1}{8}$ | Arctic America . . | Sir Edmund G. Loder, Bart. |
| 23 $\frac{1}{4}$ | 6 | $22\frac{3}{4}$ | ? | A. Barclay Walker. |
| 23 | 7 | $21\frac{1}{2}$ | ? | Royal Scottish Museum |
| ♀ -21 $\frac{1}{8}$ | $4\frac{3}{4}$ | $20\frac{5}{8}$ | Arctic America . . | Imperial Museum, Vienna. |

B.—GREENLAND RACE (*O. moschatus wardi*).

| Length on outside curve. | Breadth of palm. | Tip to Tip. | Locality. | Owner. |
|-----------------------------|---------------------|-----------------|-----------------|-----------------------------------|
| 24 $\frac{3}{4}$ | $8\frac{1}{4}$ | $22\frac{1}{2}$ | Greenland . . . | British Museum (Rowland Ward). |
| ♀ 24 $\frac{1}{2}$ | $7\frac{1}{4}$ | 27 | Do. . . | Do. |
| 23 | 7 | $23\frac{1}{2}$ | Do. . . | H.R.H. the Duc d'Orléans. |

- Owner's measurements.



Head of Tahr.

The TAHR (*Hemitragus jemlaicus*).

The tahr and its relatives are the first representatives of that great group of ruminants which includes the true goats and sheep. In all these animals horns are, as a rule, present in both sexes, and are generally more or less distinctly angulated; while the cheek-teeth have tall and narrow crowns like those of the serows, which the tahr serve to connect with the true goats. From the latter tahr are readily distinguished by the small size of their horns, which exceed but little in length the head, as well as by the absence of a beard on the chin of the males. The typical tahr is easily recognised by the great length of the hair of the body, which, although in museum specimens generally combed straight, is very shaggy in nature; and likewise by the form of the horns, which have a knotted sharp keel in front. Height at shoulder from 36 to 40 inches; weight about 200 lbs. Mr. Wilson, "Mountaineer," had a pair of horns with a length of $16\frac{1}{2}$ and girth $10\frac{1}{2}$ inches, as measured by Mr. A. O. Hume.

Distribution.—The Himalaya, from Bhutan to Kashmir.

| Length on front curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|------------------------------|---------------------|-----------------|------------------|-----------------------------------|
| $-15\frac{1}{2}$ | $8\frac{1}{4}$ | $8\frac{3}{4}$ | ? | V. A. Mackinnon. |
| 15 | $9\frac{3}{4}$ | $5\frac{3}{4}$ | Chamba | Col. C. M. Haggard. |
| $-14\frac{1\frac{5}{6}}$ | $8\frac{3}{4}$ | 5 | Do. . . . | Capt. J. T. C. Murray. |
| $-14\frac{7}{8}$ | $9\frac{1}{4}$ | $7\frac{1}{2}$ | Garhwal | 3rd Gurka Rifles. |
| $14\frac{9}{15}$ | $8\frac{3}{4}$ | ... | Chamba | Capt. J. S. Rivett-Carnac. |
| $14\frac{1}{2}$ | $8\frac{3}{4}$ | ... | Do. . . . | Earl of Altamont. |
| $14\frac{1}{4}$ | 9 | $4\frac{3}{4}$ | Kishtwar | Capt. W. F. Corbett. |
| $14\frac{1}{4}$ | $8\frac{7}{8}$ | $4\frac{3}{8}$ | ? | Lieut.-Col. A. Cadell. |
| $14\frac{1}{8}$ | $8\frac{7}{8}$ | $6\frac{5}{8}$ | Kumaon | A. O. Hume. |
| 14 | 9 | 6 | Chamba | H.H. the Raja of Chamba. |
| 14 | $8\frac{1}{8}$ | $5\frac{5}{8}$ | ? | R. Heber-Percy. |
| 14 | $8\frac{3}{4}$ | 7 | ? | C. V. Stockwell. |
| 14 | 9 | $3\frac{1}{4}$ | Padir | P. F. Hadow. |
| $13\frac{7}{8}$ | 9 | $8\frac{3}{4}$ | Chamba | Hugo de Burgh. |
| $13\frac{3}{4}$ | $8\frac{3}{4}$ | $7\frac{1}{4}$ | Do. . . . | C. P. Radclyffe. |
| $13\frac{3}{4}$ | 9 | $11\frac{1}{4}$ | ? | British Museum (Hume Collection). |
| $13\frac{3}{4}$ | $8\frac{1}{4}$ | $7\frac{3}{4}$ | ? | I. Morse. |
| $13\frac{1}{2}$ | 9 | $9\frac{1}{4}$ | Chamba | Major G. S. Rodon. |
| $13\frac{1}{2}$ | $8\frac{1}{2}$ | $7\frac{1}{2}$ | Kashmir | J. H. Phelps. |
| $13\frac{1}{2}$ | $8\frac{1}{2}$ | $7\frac{1}{4}$ | Chamba | Col. H. D. Olivier. |
| $13\frac{1}{2}$ | 9 | $6\frac{3}{4}$ | Kishtwar | P. B. Vander Byl. |
| $13\frac{3}{8}$ | 9 | $8\frac{7}{8}$ | Chamba | Capt. A. W. Robertson-Glasgow. |
| $13\frac{3}{8}$ | $9\frac{1}{8}$ | $5\frac{3}{4}$ | ? | Hon. Walter Rothschild. |

- Owner's measurements.



Skull and Horns of Arabian Tahr. From O. Thomas, *Proc. Zool. Soc.*, 1894.

The ARABIAN TAHR (*Hemitragus jayakeri*).

A much smaller and rather shorter-haired species than the last, of a generally tawny-brown colour, with relatively longer and more slender horns, which are less boldly knotted on the front edge. Height at shoulder about $24\frac{1}{2}$ inches.

This species, of which the type specimen is in the British Museum, was first obtained by Col. Jayaker, in honour of whom it was named by Mr. O. Thomas in 1894.

Distribution.—Jebel Taw, and probably some of the other ranges of Oman, South-East Arabia.

| Length on front curve. | Locality. | Owner. |
|---------------------------|--------------------------|-------------------------------|
| —11 $\frac{5}{8}$ | Oman Mountains ' | Lieut.-Col. A. S. G. Jayaker. |

— Owner's measurements.



Head of Nilgiri Tahr.

The NILGIRI TAHR or "IBEX" (*Hemitragus hylocrius*).

Although commonly designated by British sportsmen the "Nilgiri ibex," this species (the warriattu of the native shikaris) is really a member of the same genus as the Himalayan tahr. From that species it is at once distinguished by its short hair and the form of the horns; the latter having the outer surface convex instead of flat, and lacking the knotted front keel. The general colour is dark blackish brown, old males developing a light saddle-like patch on the back. Height at shoulder from 39 to 42 inches in the males, and up to 35 inches in the females.

Distribution.—The hill-ranges of Southern India, including the Nilgiris, Anamalais, and the Western Ghats nearly to Cape Comorin; usually at elevations of from 4000 to 6000 feet, but occasionally descending to lower levels. This species was greatly reduced in numbers by constant persecution, but since the herds have been under Government protection, and a special permit is necessary for shooting, there has been a large increase.

| Length on front curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|------------------------------|---------------------|-----------------|----------------------|-------------------------------------|
| -17 $\frac{1}{2}$ | 9 $\frac{7}{8}$ | 6 | Nilgiris | Rhodes Morgan. |
| -17 | 9 $\frac{3}{4}$ | ... | Do. | Measured by Gen. MacMaster, 1869. |
| 16 $\frac{3}{4}$ | 8 $\frac{7}{8}$ | 5 $\frac{5}{8}$ | Do. | A. O. Hume. |
| 16 $\frac{1}{2}$ | 8 $\frac{1}{2}$ | 5 | Do. | Col. R. Hoare. |
| 16 $\frac{1}{2}$ | 8 $\frac{1}{4}$ | 6 | Do. | S. G. Bird. |
| -16 $\frac{1}{2}$ | ... | ... | Do. | St. George Littledale. |
| -16 | 9 $\frac{1}{2}$ | 5 | Do. | Rhodes Morgan. |
| 15 $\frac{7}{8}$ | 7 $\frac{3}{4}$ | 5 $\frac{3}{8}$ | Do. | J. H. Whitehouse. |
| 15 $\frac{1}{2}$ | 8 $\frac{5}{8}$ | 7 $\frac{7}{8}$ | Do. | Sir Edmund G. Loder, Bart. |
| -15 $\frac{1}{2}$ | 8 $\frac{3}{4}$ | 4 $\frac{3}{4}$ | Do. | Major F. W. H. Walshe. |
| 15 $\frac{3}{8}$ | 8 $\frac{3}{4}$ | 6 $\frac{3}{4}$ | Do. | Martyn Kennard. |
| 15 $\frac{3}{8}$ | 8 $\frac{1}{4}$ | 6 | Do. | St. George Littledale. |
| 15 $\frac{1}{8}$ | 8 $\frac{5}{8}$ | 4 $\frac{3}{8}$ | Do. | Do. |
| 15 | 8 $\frac{1}{4}$ | 5 $\frac{1}{8}$ | Do. | The late Sir H. D. Tichborne, Bart. |
| 14 $\frac{3}{4}$ | 8 $\frac{1}{2}$ | 5 $\frac{5}{8}$ | Do. | Capt. C. S. Timins. |
| 14 $\frac{3}{4}$ | 8 $\frac{1}{4}$ | 7 $\frac{1}{4}$ | Anamalai Hills . . . | M. Loam. |
| 14 $\frac{1}{2}$ | 8 $\frac{3}{4}$ | 6 $\frac{1}{4}$ | Nilgiris | British Museum. |
| 14 $\frac{1}{2}$ | 8 $\frac{5}{8}$ | 5 $\frac{1}{8}$ | Do. | Sir Victor Brooke's Collection. |
| 14 $\frac{3}{8}$ | 8 | 4 $\frac{5}{8}$ | Anamalai Hills . . . | Capt. T. W. Greenfield. |
| ✓ 12 $\frac{3}{4}$ | 5 $\frac{1}{2}$ | 2 $\frac{3}{8}$ | Do. | M. Loam. |
| ✓ 11 $\frac{1}{4}$ | 5 $\frac{3}{4}$ | 4 $\frac{1}{4}$ | Do. | Hon. Walter Rothschild. |

- Owner's measurements.



Head of Astor Markhor. Shot by Capt. H. Barstow in Gilgit.

The MARKHOR (*Capra falconeri*).

‘The markhor, of which there are several races, passing more or less completely into one another, introduces us to the true goats (*Capra*). The males differ from the tahr by their larger horns, the length of which greatly exceeds that of the head, and likewise by the presence of a distinct beard on the chin. In most races of the markhor the beard is extended so as to form a fringe on the throat and chest; the hair on the body is also elongated; and the horns form a spiral, unlike the scimitar-shape characteristic of the ibex and goat. In Gilgit the summer coat is yellowish white, and the winter-dress of the old bucks dark iron-grey.

Distribution.—The Western Himalaya, Gilgit, Afghanistan, etc.

A and *B*.—**ASTOR and PIR PANJAL MARKHOR**

(*C. f. typica* and *C. f. cashmiriensis*).

In the Astor (*C. falconeri typica*) and Pir Panjal (*C. falconeri cashmiriensis*) races of the markhor the horns take the form of an open

corkscrew-like spiral, with comparatively few turns, recalling those of the kudu; the spiral being most open, the spread widest, and the turns fewest in the Astor form. Height at shoulder of a Gilgit specimen, $38\frac{1}{2}$ inches; of Kashmir specimens, from 38 to 41 inches; weight from about 200 to 240 lbs. The Astor race is found in Astor, Baltistan, and Chilas, while the Pir Panjal form inhabits the Pir Panjal and Kajnag ranges of Kashmir, and extends to the north-west into Hazara. In Chitral and Gilgit occur gradations between horns of the Pir Panjal and Astor types, the specimen shown on page 364 being one of these intermediate types.



Horns of Astor Markhor. From Mr. A. O. Hume's specimen.

| Length. | | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|----------------------|-------------------|---------------------|------------------|------------------|---------------------------------------|
| On outside curve. | Straight line. | | | | |
| ¹ -63 | ... | ... | ... | Pir Panjal . . . | Major-General A. A. A. Kinloch. |
| 60 $\frac{3}{4}$ | 39 $\frac{1}{2}$ | 11 $\frac{1}{2}$ | 46 | Gilgit . . . | Capt. H. Barstow. (See illustration.) |
| -60 | ... | ... | ... | Astor . . . | Lucknow Museum. |
| -59 | ... | 12 | 36 | Kajnag . . . | The late Major J. C. Shirres. |
| 59 | 36 | 10 $\frac{3}{4}$ | ... | Do. . . | Lieut.-Col. S. D. Turnbull. |
| -58 $\frac{1}{2}$ | 40 $\frac{1}{2}$ | 10 | 38 $\frac{1}{2}$ | Gilgit . . . | Marquis of Lansdowne. |

- Owner's measurements.

¹ Picked up either on the Pir Panjal or Kajnag Ranges by the late Col. Cuppage, and measured by General Kinloch.

| Length. | | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|-------------------------------|-------------------|---------------------|------------------|------------------|--|
| On outside curve. | Straight line. | | | | |
| 57 $\frac{3}{4}$ | 42 | 10 $\frac{3}{4}$ | 41 | ? | Major A. R. Knox. |
| 57 $\frac{1}{2}$ | 40 | ... | 47 $\frac{1}{2}$ | Drosh . . . | Capt. B. C. Graham. |
| 57 $\frac{1}{2}$ | .. | 11 $\frac{1}{4}$ | 40 | Kaj nag . . . | Capt. H. D. McLaughlin. |
| -56 $\frac{1}{2}$ | 38 | 11 | 38 | Kashmir . . . | J. Benett-Stanford. |
| -56 $\frac{1}{4}$ | 35 | 10 $\frac{3}{4}$ | 37 | Gilgit . . . | W. P. Appleford. |
| -56 | 36 $\frac{5}{8}$ | 13 $\frac{2}{3}$ | 34 $\frac{5}{8}$ | Kashmir . . . | Viscount Edmond de Pon- cins. |
| 56 | 51 $\frac{1}{2}$ | ... | ... | Near Bunji . . . | Capt. T. S. Johnson. |
| -55 $\frac{1}{2}$ | ... | 9 $\frac{1}{4}$ | 31 $\frac{1}{4}$ | Chilas . . . | Queen's Own Corps of Guides. |
| 55 | 44 $\frac{1}{4}$ | 11 | 47 | ? | East India Club. |
| 55 | 38 $\frac{1}{4}$ | 11 | 41 $\frac{1}{4}$ | Gilgit . . . | 3rd Gurka Rifles. |
| 55 | ... | ... | ... | Astor . . . | The late Otho Shaw. |
| 54 $\frac{1}{4}$ | ... | 10 $\frac{1}{2}$ | 26 $\frac{1}{2}$ | ? | A. O. Hume. |
| 54 | ... | 10 $\frac{5}{8}$ | 33 $\frac{3}{4}$ | Astor . . . | Martyn Kennard. |
| 53 $\frac{3}{4}$ | 38 $\frac{1}{4}$ | 12 $\frac{1}{4}$ | 40 $\frac{1}{2}$ | Do. . . . | Lieut.-Col. J. Manners Smith. |
| 53 $\frac{3}{4}$ | 37 $\frac{3}{4}$ | 10 | 35 | Chilas . . . | Major C. A. Smith. |
| ¹ 53 $\frac{1}{4}$ | 42 $\frac{1}{2}$ | 11 $\frac{1}{2}$ | 52 about | Astor . . . | Sir Victor Brooke's Collec- tion. |
| 53 | 40 | 11 | 42 | Gilgit . . . | Capt. H. F. L. Grant. |
| 53 | 38 $\frac{3}{4}$ | 9 $\frac{3}{4}$ | 35 $\frac{1}{2}$ | Do. . . . | Hon. Walter Rothschild. |
| 53 | 35 $\frac{3}{4}$ | 11 $\frac{3}{4}$ | 34 $\frac{1}{2}$ | Pir Panjal . . . | Major F. W. H. Walshe. |
| 53 | 34 $\frac{1}{4}$ | 11 | 32 | Astor . . . | Lieut.-Col. the Hon. C. Wil- loughby. |
| 52 $\frac{1}{2}$ | 39 | 11 | 39 | Gilgit . . . | Col. G. D. F. Sullivan. |
| 52 $\frac{1}{2}$ | 38 $\frac{3}{4}$ | 12 $\frac{1}{4}$ | 44 $\frac{1}{2}$ | Chilas . . . | P. F. Hadow. |
| 51 $\frac{5}{8}$ | 36 $\frac{1}{2}$ | 11 $\frac{3}{4}$ | 37 $\frac{1}{2}$ | Gilgit . . . | Major B. E. M. Gurdon. |
| 51 $\frac{3}{8}$ | 37 $\frac{1}{8}$ | 10 | 33 | Pir Panjal . . . | Sir Edmund G. Loder, Bart. |
| 51 $\frac{1}{8}$ | ... | 12 | 44 $\frac{1}{4}$ | Haramosh . . . | Major P. H. G. Powell-Cotton. |
| 51 | 36 $\frac{1}{4}$ | 11 $\frac{1}{2}$ | 31 | Kaj nag . . . | Sir Hy. E. M. James. |
| 51 | 36 $\frac{1}{2}$ | 11 | 34 $\frac{1}{2}$ | Do. . . . | Col. J. W. A. Morgan. |
| 50 $\frac{3}{4}$ | 36 $\frac{1}{4}$ | 12 | 35 $\frac{1}{2}$ | Do. . . . | Seaforth Highlanders. |
| 50 $\frac{1}{2}$ | 36 $\frac{1}{4}$ | 11 | 35 | Do. . . . | J. Arbuthnot. |
| 50 $\frac{1}{2}$ | 35 $\frac{3}{4}$ | 10 $\frac{1}{2}$ | 45 $\frac{1}{2}$ | Haramosh . . . | Capt. B. H. Shaw-Stewart. |
| 50 | 38 | 11 $\frac{3}{4}$ | 36 | Astor . . . | Sir Edmund G. Loder, Bart. |
| 50 | 36 $\frac{1}{2}$ | 12 | 36 | Chilas . . . | Major W. Hayes-Sadler. |

- Owner's measurements.

¹ Shot by Capt. Harry V. Brooke.



Skull and Horns of Pir Panjal Markhor. From Mr. Hume's specimen.



Horns of Markhor of an Intermediate type.
From a specimen in the Collection of Mr. Hume.

| Length. | | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|----------------------|-------------------|---------------------|-------------|-----------------|--|
| On outside curve. | Straight line. | | | | |
| 50 | 32½ | 10 | 31 | ? | S. M. Toppin. |
| 49½ | 37½ | 12 | 35 | Baltistan . . . | H. H. Cripps. |
| 49½ | 36 | 11½ | 32 | Chilas . . . | Major L. W. S. Oldham. |
| 49½ | 36½ | 11½ | 31 | ? | Capt. A. Young. |
| 49 | 35 | 14 | 44 | Astor . . . | A. O. Hume. (See illustra- tion on page 361.) |
| 49 | 34½ | 10½ | 37 | ? | Major E. B. Cook. |
| 48¾ | 35 | 10½ | 30 | ? | Col. H. Appleton. |
| 48¾ | 34 | 10½ | 30½ | ? | Capt. H. A. G. Chamier. |

- Owner's measurements.

| Length. | | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|----------------------|-------------------|---------------------|------------------|------------------|---|
| On outside curve. | Straight line. | | | | |
| 48 $\frac{1}{2}$ | 35 | 13 | 41 | Chilas . . . | J. D. Cobbold. |
| 48 $\frac{1}{2}$ | ... | 11 $\frac{1}{2}$ | 45 | Astor . . . | Capt. M. Murphy. |
| 48 $\frac{1}{2}$ | 32 | 11 | 31 $\frac{1}{2}$ | Baltistan . . . | Major C. A. Smith. |
| 48 $\frac{1}{2}$ | 36 $\frac{1}{2}$ | 11 | 33 $\frac{1}{2}$ | ? | Capt. A. H. Wilson. |
| 48 $\frac{1}{4}$ | 35 | 11 | 29 $\frac{1}{2}$ | ? | Capt. the Hon. A. C. Murray. |
| 48 | 34 | 10 $\frac{3}{4}$ | 36 | Astor . . . | His Majesty the King. |
| 48 | 37 $\frac{3}{4}$ | 12 $\frac{3}{4}$ | 29 | Pir Panjal . . . | A. O. Hume. (See illustration on page 363.) |
| 48 | 37 | 11 | 41 | ? | Capt. E. Berry. |
| 48 | 34 | 9 $\frac{1}{4}$ | 39 | ? | A. Marshall. |
| 47 $\frac{1}{2}$ | 35 $\frac{1}{4}$ | 11 | 44 | ? | Capt. J. S. Bogle. |
| 47 $\frac{1}{2}$ | 33 $\frac{3}{4}$ | 12 | 40 | Chilas . . . | P. B. Vander Byl. |
| 47 $\frac{1}{4}$ | 37 | 12 $\frac{1}{2}$ | 38 | Do. . . . | Major L. W. S. Oldham. |

The horns shown on p. 364 indicate a type in some degree intermediate between those of the Panjal and the Cabul type; their place of origin is unknown.

CHITRAL SPECIMENS.

| Length. | | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|----------------------|-------------------|---------------------|------------------|---------------|------------------------|
| On outside curve. | Straight line. | | | | |
| -56 | 41 | 11 $\frac{1}{2}$ | 32 | Chitral . . . | Major C. Rose. |
| -53 | ... | 11 | 34 | Do. . . . | Col. A. C. O'Donnell. |
| -52 | 34 | 10 | 33 $\frac{3}{4}$ | Do. . . . | Capt. G. W. Burton. |
| 51 $\frac{3}{4}$ | ... | 11 | 30 $\frac{1}{2}$ | Do. . . . | J. Carruthers. |
| -51 $\frac{1}{4}$ | ... | ... | 36 | Do. . . . | Major G. A. Leslie. |
| 50 | 36 | 10 | 33 | Do. . . . | Major R. H. Macdonald. |
| 49 | 39 $\frac{1}{4}$ | 11 $\frac{1}{8}$ | ... | Do. . . . | Major C. R. Johnson. |
| 47 $\frac{1}{4}$ | 34 | 10 $\frac{1}{2}$ | 39 | Do. . . . | H. Gough. |

- Owner's measurements.



Skull and Horns of Cabul Markhor. From Mr. Hume's specimens.



Skull and Horns of Suleman Markhor. From Mr. Hume's specimens.

C. and *D.*—**CABUL and SULEMAN MARKHOR**
(*C. falconeri megaceros* and *C. f. jerdoni*).

In the Cabul race of the markhor (*C. falconeri megaceros*), typically from the trans-Indus districts near Cabul, the horns are nearly straight, but show a slightly open spiral; being, in fact, intermediate between those of the Pir Panjal and Suleman races. Markhor from the Chitral valley generally have horns of the Cabul type, but in some cases these conform to the Pir Panjal type; both types occurring in the members

of one and the same flock. In the Suleman markhor (*C. falconeri jerdoni*) the horns form a perfectly straight cone, upon which the spiral ridges run like the "worm" of a screw. The distributional area of the latter race includes the trans-Indus hill-ranges on the frontier of the Punjab, Afghanistan, and Baluchistan, extending in the Suleman range as far as Mithankot, and also to the Quetta district.

| Length. Straight line. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|------------------------------|---------------------|--------------------------|--------------------------------|--|
| 48 $\frac{1}{2}$ | 7 $\frac{3}{4}$ | Odd horn Suleman race | ? | British Museum. |
| 39 $\frac{3}{8}$ | 10 $\frac{1}{4}$ | 24 $\frac{1}{4}$ | Afghanistan . . . | British Museum (Col. Grant). |
| 39 $\frac{1}{4}$ | 12 $\frac{1}{4}$ | 38 | Range 25 miles N.W. of Wana | A. J. Grant. |
| 38 $\frac{1}{2}$ | 10 $\frac{1}{2}$ | 23 $\frac{7}{8}$ | Afghanistan . . . | H.R.H. the Duke of Saxe-Coburg and Gotha. |
| 38 | 10 | 26 | Cabul | O. H. Radford. |
| 37 | 10 | 32 | Kurram Valley . . . | Major Sir G. Roos Keppel. |
| 35 $\frac{3}{4}$ | 9 $\frac{3}{4}$ | 15 | ? | Major E. Kirkpatrick. |
| 34 | 11 | 23 | ? | G. F. Giffard. |
| 33 | 9 $\frac{1}{4}$ | 19 $\frac{3}{4}$ | Afghanistan . . . | Sir Edmund G. Loder, Bart. |
| 32 $\frac{1}{2}$ | 10 | 22 $\frac{1}{2}$ | Bunnu | Queen's Own Corps of Guides. |
| 32 $\frac{1}{4}$ | 9 $\frac{3}{4}$ | 28 | ? | A. O. Hume. |
| 32 | 10 | 27 $\frac{1}{2}$ | Cabul | A. O. Hume. (See illustration on page 366.) |
| 31 $\frac{1}{2}$ | 9 $\frac{1}{2}$ | 27 | Suleman Range . . . | Hon. Walter Rothschild. |
| 30 $\frac{3}{4}$ | 10 | 25 | Baluchistan . . . | Col. J. Biddulph. |
| 30 | 9 $\frac{1}{2}$ | 20 $\frac{3}{4}$ | S. Waziristan . . . | Capt. A. G. Shea. |
| 29 $\frac{3}{4}$ | 8 $\frac{1}{4}$ | 23 $\frac{3}{4}$ | Baluchistan . . . | Lieut.-Col. R. H. Rattray. |
| 29 $\frac{1}{4}$ | 10 | 19 | Khyber Pass . . . | Capt. A. L. Bickford. |
| 29 | 10 $\frac{1}{2}$ | 16 | ? | American National Collection. |
| 28 $\frac{1}{2}$ | 9 $\frac{1}{2}$ | 18 $\frac{3}{4}$ | Sheik Budin . . . | J. C. Phillips. |
| 28 $\frac{1}{8}$ | 9 | 16 $\frac{1}{2}$ | Do. . . . | W. J. Standbridge. |
| 27 | 9 | 18 | Do. . . . | Col. J. Biddulph. |
| 26 $\frac{3}{4}$ | 11 $\frac{1}{4}$ | 22 $\frac{1}{16}$ | Suleman Range . . . | A. O. Hume. (See illustration on page 367.) |
| 26 $\frac{1}{4}$ | ... | 18 | Bunnu | Major H. W. Codrington. |
| 26 $\frac{1}{4}$ | 9 $\frac{3}{4}$ | 21 | ? | L. C. Sanford. |
| 26 | 10 $\frac{1}{2}$ | 31 | ? | J. H. Whitehouse. |
| 26 | 8 $\frac{3}{4}$ | 18 $\frac{1}{2}$ | Sheik Budin . . . | Gen. Sir H. Collett. |
| 25 $\frac{1}{2}$ | 10 | 21 | Quetta | Capt. B. H. Shaw-Stewart. |

- Owner's measurements.



Head of Tian Shan race of Asiatic Ibex. From Lord Elphinstone's specimen.

The SAKIN or ASIATIC IBEX (*Capra sibirica*).

The first of the true ibexes, in all of which the long scimitar-shaped horns carry bold transverse knots on the front surface. In the present species the horns are characterised by their large size and well-developed front surface; the second distinctive feature being the long beard of the males. Height at shoulder from 40 to 42 inches. Weight about 206 lbs.; when cleaned, from 128 to 153 lbs.

Distribution.—The mountains of Central Asia, from near Lhasa, the Tian Shan, and the Altai to the Himalaya (exclusive of the Pir Panjal), and from the neighbourhood of Herat to Kumaon and adjacent districts as far east as the source of the Ganges. Several local races of this species are recognised; the typical race (*C. sibirica typica*) of the Sahan range, the Irtish race (*C. s. altaica*), the Tian Shan race (*C. s. almasyi*), the Gilgit race (*C. s. pedri*), the Katutay ibex (*C. s. lydekkeri*), the Baltistan ibex (*C. s. wardi*), and the Himalayan ibex (*C. s. sacin*) from the mountains to the northward of Kashmir.

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|-------------------------------|------------------|------------------|-----------------|---|
| 58 | 11 $\frac{1}{4}$ | 44 $\frac{1}{2}$ | Tian Shan . . . | Col. H. Appleton. |
| 57 $\frac{1}{2}$ | 10 $\frac{3}{4}$ | 24 | Do. . . . | H. M. von Archer. |
| 57 $\frac{1}{2}$ | 11 $\frac{3}{4}$ | 28 | Do. . . . | Capt. G. R. H. Cheape. |
| 57 $\frac{3}{8}$ | 11 | 30 | Do. . . . | A. Bayley-Worthington. |
| 56 $\frac{3}{4}$ | 11 $\frac{1}{2}$ | 36 $\frac{1}{2}$ | Do. . . . | Lord Elphinstone. |
| 56 $\frac{1}{4}$ | 11 | 40 | Do. . . . | R. F. Glyn. |
| 56 | 10 $\frac{1}{4}$ | 21 $\frac{3}{4}$ | Do. . . . | P. F. Hadow. |
| 55 | 11 $\frac{1}{2}$ | 35 | Gilgit . . . | Major B. E. M. Gurdon. |
| 54 $\frac{3}{4}$ | 11 $\frac{1}{4}$ | 29 | Tian Shan . . . | P. B. Vander Byl. |
| 54 $\frac{3}{4}$ | 11 $\frac{1}{4}$ | 30 $\frac{1}{4}$ | Do. . . . | Major A. D. G. Gardyne. |
| ¹ 54 $\frac{3}{8}$ | 10 $\frac{1}{4}$ | 25 | Gilgit . . . | Queen's Own Corps of Guides. |
| 54 $\frac{1}{4}$ | 11 $\frac{1}{4}$ | ... | Tian Shan . . . | B. Chew. |
| ² 54 | 10 $\frac{3}{4}$ | 45 | Do. . . . | His Majesty the King. |
| 54 | 11 $\frac{5}{8}$ | 27 | Do. . . . | Lord Elphinstone. |
| 53 $\frac{3}{4}$ | 11 $\frac{1}{4}$ | 45 | Do. . . . | J. H. Miller. |
| 53 $\frac{3}{4}$ | 10 $\frac{1}{2}$ | 33 $\frac{1}{2}$ | Do. . . . | Ford G. Barclay. |
| 53 $\frac{3}{4}$ | 11 $\frac{3}{4}$ | 34 | China . . . | Major P. Hambro. |
| 53 $\frac{1}{4}$ | 11 $\frac{1}{2}$ | 42 | Tian Shan . . . | R. Hayne. |
| 53 $\frac{1}{4}$ | 10 $\frac{1}{2}$ | 20 $\frac{1}{4}$ | Gilgit . . . | Col. J. Biddulph. |
| 53 $\frac{1}{4}$ | 12 $\frac{1}{4}$ | 35 | Tian Shan . . . | Capt. J. N. Price Wood. |
| 53 | 12 | 35 $\frac{1}{2}$ | Do. . . . | St. George Littledale. |
| 52 $\frac{1}{2}$ | 12 $\frac{1}{4}$ | 26 | Do. . . . | P. Church. |
| 52 | 10 | ... | Baltistan . . . | H.H. the Maharaja of Travancore. |
| 51 $\frac{3}{4}$ | 12 $\frac{1}{2}$ | 48 | Tian Shan . . . | H. Whitaker. |
| 51 $\frac{1}{2}$ | ... | ... | Kashmir . . . | Martyn Kennard. |
| 51 $\frac{1}{4}$ | 9 $\frac{1}{2}$ | 34 $\frac{1}{2}$ | ? | Major J. Manners Smith. |
| 50 $\frac{3}{4}$ | 11 $\frac{1}{2}$ | 34 $\frac{1}{2}$ | Tian Shan . . . | P. B. Vander Byl. |
| 50 $\frac{1}{2}$ | 11 $\frac{1}{4}$ | 35 $\frac{1}{2}$ | Do. . . . | British Museum (St. George Littledale). |
| 50 | 11 | 30 $\frac{1}{2}$ | Do. . . . | Marquis of Lansdowne. |
| 50 | 11 $\frac{1}{4}$ | 24 $\frac{1}{2}$ | Do. . . . | Lieut.-Col. A. H. Hussey. |
| 50 | 12 | 19 $\frac{3}{4}$ | Do. . . . | J. V. Phelps. |
| 49 $\frac{3}{4}$ | 10 $\frac{3}{4}$ | 28 $\frac{1}{2}$ | Do. . . . | Lord Osborne Beaucherk. |
| 49 $\frac{3}{4}$ | 10 $\frac{3}{8}$ | 25 $\frac{1}{4}$ | ? | Sir Edmund G. Loder, Bart. |
| 49 $\frac{3}{4}$ | 10 | 21 $\frac{1}{2}$ | Chitral . . . | British Museum (Major B. E. M. Gurdon). |

- Owner's measurements.

¹ Picked up by Maj.-Gen. R. E. Hutchinson.² Shot by St. George Littledale.

| Length on front curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|---------------------------|---------------------|------------------|-----------------------|--|
| 49 | 10 $\frac{1}{4}$ | 9 $\frac{1}{2}$ | Skardo . . . | Major George Douglas. |
| 48 $\frac{1}{4}$ | 12 | 36 | Tian Shan . . . | G. L. Harrison. |
| 48 $\frac{3}{4}$ | 10 $\frac{1}{2}$ | 33 | Baltistan . . . | H. H. Cripps. |
| 48 $\frac{1}{2}$ | 10 $\frac{1}{4}$ | 38 $\frac{1}{2}$ | Altai . . . | Col. C. B. Wood. |
| 48 $\frac{1}{2}$ | 9 $\frac{3}{4}$ | 30 $\frac{1}{2}$ | Nubra, north of Leh . | A. O. Hume. |
| 48 $\frac{1}{2}$ | 9 | 22 $\frac{3}{4}$ | Kashmir . . . | Col. G. D. F. Sullivan. |
| 48 $\frac{1}{2}$ | 10 $\frac{1}{2}$ | 28 | Do. . . | Capt. S. H. Charrington. |
| 48 $\frac{1}{4}$ | 10 $\frac{1}{4}$ | 29 $\frac{3}{4}$ | Ladak . . . | Capt. R. H. R. Brocklebank. |
| 48 | 11 | 27 $\frac{1}{2}$ | Tian Shan . . . | E. W. Dixon. |
| 48 | 10 $\frac{1}{2}$ | 24 $\frac{1}{2}$ | Tilel Valley, Kashmir | J. Campbell of Kilberry. |
| 47 $\frac{1}{2}$ | 11 | 18 $\frac{1}{4}$ | Tian Shan . . . | Sir Edmund G. Loder, Bart. |
| 47 | 11 $\frac{1}{4}$ | ... | ? | Carl Hagenbeck. |
| 47 | 10 $\frac{1}{4}$ | 35 | Baltistan . . . | Lady Constance Stewart- Richardson. |
| 47 | 12 $\frac{1}{4}$ | 35 $\frac{1}{2}$ | Tian Shan . . . | A. W. Berg. |
| 46 $\frac{3}{4}$ | 9 $\frac{1}{4}$ | ... | Kashmir . . . | Major E. B. Cook. |
| 46 $\frac{3}{4}$ | 9 $\frac{3}{4}$ | 25 $\frac{1}{4}$ | Do. . . | C. P. Radclyffe. |
| 46 $\frac{3}{4}$ | 9 $\frac{3}{4}$ | 22 $\frac{1}{2}$ | Do. . . | Lient.-Col. W. Goring. |
| 46 $\frac{1}{2}$ | 12 | 20 $\frac{1}{2}$ | Altai . . . | Hon. Walter Rothschild. |
| 46 $\frac{1}{2}$ | 10 | 25 $\frac{1}{2}$ | Kashmir . . . | G. A. Lloyd. |
| 46 $\frac{1}{2}$ | 10 $\frac{1}{2}$ | 23 $\frac{1}{2}$ | ? | Capt. J. S. Bogle. |
| 46 | 10 $\frac{1}{2}$ | 17 $\frac{3}{4}$ | Baltistan . . . | R. Walpole. |
| 46 | 10 $\frac{1}{4}$ | 21 $\frac{5}{8}$ | ? | Major C. E. Palmer. |
| 46 | 10 $\frac{3}{4}$ | 12 $\frac{1}{2}$ | Ladak . . . | P. F. Hadow. |
| 46 | 10 | 24 $\frac{1}{2}$ | ? | Capt. H. G. Stafford. |
| 46 | 11 | 14 $\frac{1}{2}$ | Kashmir . . . | Capt. H. Meynell. |
| 45 $\frac{3}{4}$ | 10 $\frac{1}{4}$ | ... | Do. . . | Capt. H. Nicolay. |
| 45 $\frac{1}{2}$ | 9 $\frac{1}{2}$ | 33 $\frac{3}{4}$ | Pamir . . . | Major J. B. Mackintosh. |
| 45 $\frac{1}{2}$ | 9 $\frac{1}{4}$ | 19 $\frac{1}{2}$ | Do. . . | Major R. L. Kennion. |
| 45 $\frac{1}{2}$ | 9 $\frac{1}{4}$ | 19 $\frac{1}{2}$ | Baltistan . . . | T. R. Ubsdell. |
| 45 $\frac{1}{2}$ | 10 $\frac{1}{2}$ | 27 | Do. . . | His Majesty the King. |
| 45 $\frac{1}{2}$ | 10 | 18 $\frac{1}{2}$ | ? | Capt. A. Courage. |
| 45 $\frac{1}{4}$ | 9 $\frac{1}{2}$ | 24 $\frac{3}{4}$ | Baltistan . . . | Queen's Own Corps of Guides. |
| 45 | 10 | 20 $\frac{1}{4}$ | Gilgit . . . | Col. J. Biddulph. |
| 45 | 9 | 12 $\frac{1}{2}$ | Baltistan . . . | Major C. B. Vandeleur. |

- Owner's measurements.



Ibex Head, in the possession of H.M. the King of Italy.

The IBEX or STEINBOCK (*Capra ibex*).

This species, which only survives in a protected state, differs from the Asiatic ibex by the much smaller size of the beard of the male, as well as by a slight variation in the horns; the height at the shoulder reaching to about 40 inches. Weight from 85 to 106 lbs. clean. Formerly distributed throughout the higher Alps of Switzerland, Savoy, and the Tyrol, but now surviving only in a few valleys on the Italian side of Monte Rosa. Most of the few specimens now obtainable are comparatively small, and good horns are very scarce in English collections.

| Length on front curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|--------------------------------|---------------------|------------------|-----------------------|---|
| ¹ -44 $\frac{1}{2}$ | 10 $\frac{1}{4}$ | ... | Valley of Aosta . . . | H.M. the King of Italy. |
| -39 $\frac{1}{4}$ | 10 $\frac{1}{2}$ | 40 $\frac{1}{4}$ | ? | Imperial Museum, Vienna. |
| 38 $\frac{1}{2}$ | ... | ... | Valley of Aosta . . . | H.M. the King of Italy. |
| 37 $\frac{1}{4}$ | . | ... | Do. . . . | Do. |
| -35 $\frac{3}{4}$ | 9 | 26 $\frac{3}{4}$ | Do. . . . | Do. |
| 34 $\frac{1}{2}$ | 9 $\frac{1}{4}$ | ... | Styria | Sir Edmund G. Loder, Bart. |
| -33 $\frac{1}{4}$ | 9 | 39 $\frac{3}{4}$ | Valley of Aosta . . . | Shot by H.M. the late Victor Emmanuel. |
| -30 | 9 | 21 | ? | Dublin Museum. |
| 29 | 8 $\frac{3}{4}$ | 10 $\frac{1}{4}$ | Valley of Aosta . . . | Rev. J. M. Gordon. |
| 28 $\frac{3}{4}$ | 8 $\frac{3}{4}$ | 17 $\frac{1}{2}$ | ? | J. Hamilton Leigh. |
| -28 $\frac{1}{4}$ | 9 $\frac{3}{4}$ | 18 | Valley of Aosta . . . | C. H. Wilczek. |
| 28 | 9 $\frac{1}{4}$ | 17 $\frac{1}{4}$ | Do. . . . | Hon. Walter Rothschild. |
| 27 $\frac{1}{2}$ | 9 $\frac{1}{4}$ | 11 $\frac{1}{2}$ | Do. . . . | Royal Scottish Museum. |
| 26 $\frac{3}{4}$ | 8 $\frac{3}{4}$ | 22 $\frac{1}{2}$ | Do. . . . | British Museum. |

- Owner's measurements.

¹ Height at shoulder, 33 $\frac{1}{2}$; weight, 170 lbs.

The WALA or ABYSSINIAN IBEX (*Capra vali*).

This ibex, the wala of the natives of Simien, differs from the Nubian ibex by its stouter build, shorter beard, and larger and more massive horns, on which the knots are but slightly prominent, as well as by its darker colour and superior size. The forehead of the skull has a conspicuous bony prominence. Although described by Rüppell in 1835, this ibex was practically unknown till 1901, when a fine series of specimens was brought home by Major Powell-Cotton. Height at shoulder about 40 inches. Weight about 260 lbs.

Distribution.—The mountains of Simien, Abyssinia.

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|-------------------------------|------------------|------------------|-------------------|--|
| 43 $\frac{7}{8}$ | ... | ... | Abyssinia | British Museum (Major P. H. G. Powell-Cotton). |
| 43 $\frac{5}{8}$ | 11 $\frac{1}{8}$ | 12 $\frac{1}{2}$ | Do. . . . | Major P. H. G. Powell-Cotton. |
| 43 | 10 $\frac{1}{2}$ | 23 | Do. . . . | Lady Meux. |
| ¹ 42 $\frac{3}{4}$ | 10 $\frac{3}{4}$ | 18 $\frac{3}{4}$ | Do. . . . | Her Majesty Queen Alexandra. |
| 41 $\frac{3}{4}$ | 11 | 16 $\frac{3}{4}$ | Do. . . . | Major P. H. G. Powell-Cotton. |
| 40 $\frac{5}{8}$ | 11 | ... | Do. . . . | Hon. Walter Rothschild. |
| ♀ 13 $\frac{1}{4}$ | 4 $\frac{7}{8}$ | 8 $\frac{5}{8}$ | Do. . . . | Major P. H. G. Powell-Cotton. |

¹ Presented by the late Ras Makunnan, 1902.



Skulls and Horns of Male and Female Abyssinian Ibex. Shot by Major Powell-Cotton.



Horns of the Sinaitic race of Nubian Ibex.

The BEDEN or NUBIAN IBEX (*Capra nubiana*).

This species may be easily distinguished from both the Asiatic and the Alpine ibex by the form of the horns, which are very long, rather slender, and with the outer front angle much bevelled off, so that the proper front surface is very narrow, and its transverse knots proportionately short. Three races are recognised, namely, the typical Nubian form, *C. n. typica*, the S. Arabian *C. n. mensesi*, and the Sinaitic *C. n. sinaitica*. In the form of its horns the latter approximates to the wild goat.

Distribution.—The mountains of Southern Arabia, Palestine, the Sinaitic Peninsula, Upper Egypt, and probably also those of Morocco and the interior of Senegambia. Arabian name, *beden*.

A.—NUBIAN RACE (*C. nubiana typica*).

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|-----------------|------------------|--------------------|--------------------------------|
| 51 | 8 $\frac{5}{8}$ | 39 $\frac{1}{2}$ | Upper Egypt . . . | Prince Henry of Liechtenstein. |
| 46 $\frac{1}{8}$ | 8 | ... | North Africa . . . | British Museum. |
| 45 $\frac{1}{2}$ | 8 | 32 $\frac{1}{2}$ | Do. . . . | H. H. Prince Omar Toussoun. |
| 45 | 7 $\frac{3}{4}$ | 16 $\frac{3}{4}$ | Do. . . . | G. E. Burnett Stuart. |
| 43 $\frac{3}{4}$ | 9 $\frac{1}{4}$ | 6 $\frac{3}{4}$ | Do. . . . | Percy C. Madeira. |
| 43 $\frac{1}{4}$ | 7 $\frac{1}{4}$ | 22 $\frac{1}{4}$ | Do. . . . | Lieut.-Col. H. R. Lloyd. |
| 43 | 8 | 19 | Near Suakin . . . | A. L. Butler. |
| 42 | 7 $\frac{1}{2}$ | 20 | Do. . . . | Hon. Walter Rothschild. |
| 41 $\frac{3}{4}$ | 7 $\frac{5}{8}$ | 17 $\frac{5}{8}$ | North Africa . . . | Major W. H. Besant. |
| 40 $\frac{3}{4}$ | 7 $\frac{3}{4}$ | 20 $\frac{3}{4}$ | Do. . . . | W. H. Watney. |
| 40 $\frac{1}{4}$ | 7 $\frac{1}{2}$ | 24 | Do. . . . | A. Fowler. |
| 40 $\frac{1}{4}$ | 7 $\frac{1}{2}$ | 18 $\frac{3}{4}$ | Do. . . . | H. Boughton Leigh. |
| 40 | 8 | 19 $\frac{1}{2}$ | Do. . . . | Major H. H. S. Morant. |
| 38 $\frac{5}{8}$ | 7 $\frac{1}{2}$ | 12 $\frac{1}{2}$ | Upper Egypt . . . | Sir Edmund G. Loder, Bart. |
| 38 $\frac{1}{2}$ | 7 $\frac{1}{2}$ | 14 $\frac{1}{4}$ | North Africa . . . | Prince E. Demidoff. |
| 38 $\frac{1}{2}$ | 8 $\frac{3}{4}$ | 10 $\frac{1}{4}$ | Do. . . . | Lord Villiers. |
| 38 $\frac{1}{4}$ | 8 | 21 | Suakin | Major A. King. |

B. and *C.*—ARABIAN and SINAITIC RACES (*C. nubiana mengesi* and *sinaitica*).

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|-----------------|------------------|-------------------------|----------------------------|
| 50 | 9 | ... | Southern Arabia | Capt. J. T. Brinkley. |
| 49 $\frac{1}{8}$ | 8 $\frac{1}{2}$ | 12 | Do. . . . | Major W. Merewether. |
| 42 | 7 $\frac{1}{4}$ | ... | Arabia | East India Club. |
| 41 $\frac{1}{2}$ | 8 | 16 $\frac{1}{2}$ | Do. . . . | Sir Edmund G. Loder, Bart. |
| 39 $\frac{1}{2}$ | 8 $\frac{7}{8}$ | 19 $\frac{1}{2}$ | South-East Arabia . . . | Hon. Walter Rothschild. |
| 38 $\frac{1}{2}$ | 7 $\frac{1}{2}$ | 12 | Sinai | R. Hayne. |
| 35 $\frac{1}{2}$ | 6 $\frac{1}{2}$ | 12 | Do. . . . | W. E. Pease. |
| 35 $\frac{1}{4}$ | 7 | 15 $\frac{3}{8}$ | Do. . . . | J. D. Cobbold. |
| 30 | 7 | 15 $\frac{1}{2}$ | Palestine | P. B. Vander Byl. |
| ♀ 10 $\frac{3}{8}$ | 3 $\frac{1}{4}$ | 2 $\frac{1}{2}$ | Sinai | W. E. Pease. |

- Owner's measurements.



Skull and Horns of Sind Wild Goat. From Mr. Hume's specimen.

The PASANG or WILD GOAT (*Capra hircus*).

The horns of the Persian wild goat (*C. hircus agagrus*), which appears to be the ancestral form of the domesticated goat of Europe and Asia (*C. hircus*), differ from those of the various species of ibex by having no distinct front surface, but merely a sharp notched keel, representing the inner front angle of the ibex horn. In old males the beard is very long. The general colour of the upper-parts is brownish grey in winter and reddish brown in summer, while the under-parts are white, and there are blackish brown and white markings on the face and limbs. Height at shoulder reaching to 37 inches.

The so-called Sind ibex (*C. hircus blythi*) forms a second local race of the species, inhabiting Sind and parts of Baluchistan, where it probably passes imperceptibly into the Persian race. It is distinguished mainly by a slight difference in the form of the horns. A third race (*C. h. raddi*) inhabits the Caucasus. Other races are found in some of the islands of the Ægean Archipelago, where they appear to have been more or less crossed with domesticated breeds.

Distribution.—The islands of South-Eastern Europe, and the mountains of South-Eastern Europe and South-Western Asia from the Caucasus through Persia to the confines of Baluchistan and Sind. Native Persian name, *pasang* (rock-footed).

| Length on front curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|---------------------------|---------------------|-------------|---------------------------|--|
| 55½ | ... | 24 | Persia . . . | Carl Hagenbeck. |
| 53 | 100 | 46 | Asia Minor . . . | B. Hodder. |
| 52½ | 7½ | 8½ | Sind . . . | A. O. Hume. (Shot by Col. F. Marston. See illustration.) |
| 51½ | 9 | 7 | Russian Turkestan . . . | The late Prince P. Demidoff. |
| 50½ | 9½ | 14 | Taurus Range . . . | Count C. Deym. |
| 48½ | 8½ | 13½ | Caucasus . . . | British Museum. |
| 48 | 8 | 20½ | Sind . . . | J. D. Inverarity. |
| 47½ | 9½ | ... | Cilician Taurus . . . | C. G. Danford. |
| 47½ | 7½ | 8½ | Persia . . . | Major R. L. Kennion. |
| 46½ | 7½ | 14 | Sind . . . | Sir Edmund G. Loder, Bart. |
| 46½ | 8½ | 18½ | Asia Minor . . . | F. C. Selous. |
| 46½ | 9½ | 14½ | Do. . . | T. Bowen Rees. |
| 46 | 7½ | 11 | Sind . . . | Major C. S. Cumberland. |
| 45½ | 8½ | 9½ | Daghestan . . . | E. N. Buxton. |
| 45½ | 8½ | 5 | Do. . . | R. Graham. |
| 45½ | 9½ | 21 | Damascus . . . | Dr. Albert von Stephani. |
| 45½ | 8 | 11½ | Sind . . . | Col. J. Biddulph. |
| 44½ | 8½ | 21½ | Caucasus . . . | British Museum. |
| 43½ | 10 | 21½ | Asia Minor . . . | D. Forbes. |
| 43½ | 10 | 12½ | Persia . . . | Hon. W. Erskine. |
| 43 | 9 | 15½ | Taurus Range, Asia Minor. | Sir Edmund G. Loder, Bart. |
| 43 | 8½ | 14½ | N. Persia . . . | Capt. C. T. Daukes. |
| 43 | 8½ | 22½ | “ “ “ | J. Carr Saunders. |

— Owner's measurements.

DOMESTICATED GOATS.

| Length on front curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|---------------------------|---------------------|------------------|---------------------|----------------------------|
| 52 $\frac{1}{2}$ | 10 $\frac{1}{2}$ | 40 $\frac{3}{8}$ | Daghestan | Sir Edmund G. Loder, Bart. |
| 44 $\frac{1}{4}$ | 6 | 29 $\frac{3}{4}$ | Angora | Do. |
| 40 $\frac{1}{2}$ | 9 $\frac{3}{8}$ | ... | Daghestan | Do. |
| 37 $\frac{1}{2}$ | 7 $\frac{1}{4}$ | 32 $\frac{3}{4}$ | Scotland | Col. W. Hall Walker. |
| 37 | 7 $\frac{1}{2}$ | 35 | Meoble, N. B. . . . | Walter Jones. |
| 35 $\frac{3}{4}$ | 7 $\frac{3}{4}$ | 38 $\frac{1}{4}$ | ? | B. de Bertodano. |
| 34 $\frac{1}{4}$ | 7 $\frac{1}{2}$ | 38 $\frac{1}{2}$ | Scotland | Duke of Bedford. |
| 34 | 8 $\frac{1}{2}$ | 32 $\frac{1}{2}$ | Do. | F. C. Selous. |
| 33 $\frac{1}{2}$ | 8 | 26 $\frac{1}{2}$ | Meoble | Hon. O. C. Molyneux. |

- Owner's measurements.



Head of Spanish Ibex. Mr. Abel Chapman's specimen.

The SPANISH IBEX (*Capra pyrenaica*).

Although commonly designated an ibex, the Spanish wild goat has horns more like those of one of the Caucasian tur, and is therefore better regarded as a species of that group. The horns, which have a sharp inner edge, are twisted in a very open semi-spiral, with the tips generally turned outwards, and are quite unlike those of the true ibex. In having dark and light markings on the limbs the species is, however, much more like the Persian wild goat than either of the Caucasian tur. The beard of the males varies greatly in size according to age and season. Height at shoulder from about 27 to 32 inches; weight, when clean, about 10 stone.

Distribution.—The Pyrenees and the high ranges of Central Spain, Andalusia, and Portugal. The typical race of the species inhabits the Pyrenees; those inhabiting the more southern parts may be distinguished as a separate race (*C. pyrenaica hispanica*).

| Length on outside curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|--------------------------------|---------------------|------------------|--------------------|---------------------------------|
| 31 | 8 $\frac{3}{4}$ | ... | Pyrenees . . . | Sir Victor Brooke's Collection. |
| 30 $\frac{1}{4}$ | 9 $\frac{1}{2}$ | 23 $\frac{1}{2}$ | Central Spain . . | Abel Chapman and W. J. Buck. |
| 29 $\frac{3}{4}$ | 8 $\frac{1}{4}$ | 23 $\frac{1}{4}$ | Almeira . . . | H. Brinsley Brooke. |
| 29 $\frac{5}{8}$ | 9 $\frac{1}{4}$ | 20 $\frac{7}{8}$ | Sierra de Gredos . | Natural History Museum, Madrid. |
| 29 $\frac{1}{2}$ | 8 $\frac{1}{4}$ | 20 $\frac{1}{2}$ | Sierra Nevada . . | Do. |
| 29 $\frac{1}{4}$ | 9 $\frac{1}{2}$ | 23 $\frac{1}{4}$ | Do. . . | Abel Chapman. |
| 28 $\frac{3}{4}$ | 10 $\frac{1}{2}$ | 28 $\frac{5}{8}$ | ? . . . | Imperial Museum, Vienna. |
| 28 $\frac{1}{4}$ | 9 $\frac{3}{4}$ | 24 $\frac{1}{2}$ | Sierra de Gredos . | Marques de la Torrecilla. |
| 28 | 9 $\frac{1}{2}$ | 23 $\frac{3}{8}$ | Spain . . . | British Museum. |
| 27 $\frac{3}{4}$ | 9 | 25 | Central Spain . . | Sir Edmund G. Loder, Bart. |
| 27 $\frac{5}{8}$ | 9 $\frac{3}{8}$ | 20 $\frac{1}{2}$ | Sierra de Gredos . | Marques de Viana. |
| 27 $\frac{1}{2}$ | 8 $\frac{1}{2}$ | 20 $\frac{1}{2}$ | Do. . . | Jose del Prado. |
| 25 $\frac{5}{8}$ | 8 $\frac{1}{2}$ | 16 $\frac{5}{8}$ | Spain . . . | Hon. Walter Rothschild. |
| 25 $\frac{1}{2}$ | 7 $\frac{3}{4}$ | 10 $\frac{1}{2}$ | Nr. Cordova . . | Lord Hindlip. |
| 25 $\frac{1}{2}$ | 9 $\frac{1}{2}$ | 13 | Spain . . . | W. J. Buck. |
| 24 $\frac{1}{2}$ | 10 | 14 | Val d'Arras . . | E. N. Buxton. |
| 23 $\frac{3}{4}$ | 8 | 16 | Southern Spain . | Marques Marzales. |
| 22 $\frac{3}{4}$ | 9 $\frac{1}{2}$ | 18 $\frac{3}{4}$ | Val d'Arras . . | E. N. Buxton. |
| 22 | 7 $\frac{3}{4}$ | 14 | Spain . . . | Marques Marzales. |
| 21 $\frac{1}{2}$ | 7 $\frac{3}{4}$ | ... | Do. . . | Prince E. Demidoff. |
| 20 | 8 $\frac{1}{2}$ | 15 | Sierra Blanca . . | A. Larios. |
| ♀ - 10 $\frac{3}{4}$ | 5 $\frac{5}{8}$ | 7 $\frac{1}{2}$ | Val d'Arras . . | A. E. Leatham. |
| ♀ 9 $\frac{1}{2}$ | 5 $\frac{3}{8}$ | 6 $\frac{1}{4}$ | Do. . . | E. N. Buxton. |

- Owner's measurements.



Western Tur. Shot by Mr. P. B. Vander Byl.

WESTERN TUR or IBEX (*Capra caucasica*).

Of the two peculiar kinds of wild goats inhabiting the Caucasus, and locally known as tur, the present species is easily recognised by the approximation in the form of its horns (especially in immature individuals) to those of true ibex, and the uniform bright chestnut-brown colour of the hair of the adult male in the summer coat; the chin, beard, and lower part of the legs being alone black. Although the horns present a considerable resemblance to those of ibex, they are decidedly thicker, have a different curvature, and show distinct knobs, or knots only in their upper half. In young males the knots extend the whole length of the front of the horns, and the long winter coat is a pale drab colour. Height at shoulder about $37\frac{1}{2}$ inches.

Distribution.—The western half of the main chain of the Caucasus.

The typical race (*C. caucasica typica*) is found immediately west of the Central Caucasus, at the head-waters of the Mulka and Baksan rivers in the Elbruz district. It comes nearest to Pallas's tur. The mountains west of Elbruz are the home of Severtzow's race (*C. c. severtzowi*), which is the largest of all, and greyer than the

typical red race. Still farther west, although somewhat overlapping *severtzowi*, comes Dinnik's race (*C. c. dinniki*), whose range to the west, like that of the species, is limited by Mount Shungus.

| Length on front curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|-------------------------------|---------------------|------------------|--------------------------|----------------------------|
| 40 $\frac{1}{2}$ | 12 $\frac{5}{8}$ | 15 $\frac{1}{4}$ | Caucasus | St. George Littledale. |
| 36 $\frac{1}{2}$ | 11 $\frac{5}{8}$ | 27 $\frac{5}{8}$ | Do. | Do. |
| 34 $\frac{1}{2}$ | 11 | 16 | Do. | British Museum. |
| 34 $\frac{1}{2}$ | 12 | 22 | Kouban, Caucasus | Prince E. Demidoff. |
| 33 $\frac{1}{2}$ | 12 $\frac{1}{2}$ | ... | Do. | P. B. Vander Byl. |
| 32 $\frac{1}{2}$ | 11 $\frac{3}{4}$ | 22 $\frac{1}{4}$ | Do. | Do. |
| 32 $\frac{1}{2}$ | 11 $\frac{1}{2}$ | 25 $\frac{1}{2}$ | Do. | Prince E. Demidoff. |
| 30 $\frac{1}{2}$ | 11 $\frac{1}{2}$ | 19 $\frac{1}{2}$ | Do. | Sir Edmund G. Loder, Bart. |
| 30 | 11 $\frac{1}{2}$ | 19 $\frac{1}{2}$ | Do. | Hon. Walter Rothschild. |
| ¹ 22 $\frac{3}{4}$ | 10 $\frac{1}{2}$ | 22 $\frac{1}{4}$ | Do. | St. George Littledale. |

¹ Presumed hybrid between *C. caucasica* and *C. cylindricornis*.



Head of Pallas's Tur. Shot by Prince E. Demidoff.

PALLAS'S TUR (*Capra cylindricornis*).

Distinctly different from most races of the last is the wild goat commonly designated by sportsmen the "Caucasian bharal"; this name being derived from the resemblance of its horns to those of the true Himalayan bharal. In spite of this point of resemblance, its affinities are, however, evidently with the goats, although it not improbably indicates a step from the more typical members of that group in the direction of the sheep. In addition to the peculiar form of its horns, this tur is characterised by the extreme shortness of the beard, which merely forms a curling fringe on each side of the chin, instead of the long central tuft observable at certain seasons in the western species. The general colour of the fur is uniform dull brown, except on the chin, the tip of the tail, and portions of the legs, where it is blackish brown. Height at shoulder about 3 feet.

Distribution.—The Eastern Caucasus, from Kasbek to Daghestan.

| Length on front curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|------------------------------|---------------------|------------------|---------------------------|--|
| 46 | 13 $\frac{3}{4}$ | 8 $\frac{3}{4}$ | Caucasus | Prince E. Demidoff. |
| 44 $\frac{3}{4}$ | 13 $\frac{1}{2}$ | 10 | Do. | The late Prince P. Demidoff. |
| 43 | 14 | 17 $\frac{1}{2}$ | Do. | British Museum (the late Prince P. Demidoff). |
| 40 $\frac{1}{2}$ | 12 $\frac{1}{4}$ | 15 $\frac{1}{2}$ | Do. | P. B. Vander Byl. |
| 38 $\frac{1}{2}$ | 13 | 19 | ? | St. George Littledale. |
| 38 $\frac{1}{4}$ | 12 $\frac{1}{2}$ | ... | Eastern Caucasus | Hon. Walter Rothschild. |
| 36 | 13 | . | Daghestan | J. D. Cobbold. |
| 35 $\frac{1}{4}$ | 12 | 18 $\frac{1}{4}$ | Caucasus | Rhys Williams. |
| 35 | 12 $\frac{3}{4}$ | 20 $\frac{1}{4}$ | Do. | Mervyn G. Williams. |
| 34 $\frac{3}{4}$ | 13 $\frac{3}{4}$ | 24 $\frac{1}{4}$ | Do. | H.R.H. the Duke of Alba. |
| 34 $\frac{1}{2}$ | 10 $\frac{5}{8}$ | 13 $\frac{1}{2}$ | Do. | Major Talbot. |
| 33 $\frac{3}{4}$ | 13 | 17 $\frac{1}{4}$ | Do. | Sir Edmund G. Loder, Bart. |
| 32 | 13 | 19 | Do. | Berthold Smith. |
| 32 | 11 $\frac{1}{2}$ | 22 | Do. | Sutton Timmis. |
| 31 $\frac{1}{2}$ | 12 | 7 $\frac{1}{4}$ | Do. | F. G. Barclay. |
| 31 | 11 | 28 | Northern Caucasus | Capt. H. H. P. Deasy. |
| 30 | 11 | 14 | Caucasus | Dr. Albert von Stephani. |

- Owner's measurements.



Skull and Horns of Bharal.

The BHARAL or BLUE SHEEP (*Ovis nahura*).

(Or *Pseudois nahura*.)

Ta-sang-yang, Chinese.

With horns not unlike those of Pallas's tur, the bharal or blue sheep of Tibet differs from the goats by the absence of a beard and a strong odour in the males, and on account of these and other points of difference from the goats is placed among the sheep, of which group it forms a very aberrant member. The most distinctive external features are the comparatively smooth and olive-coloured horns, which curve at first outwards and then backwards from the sides of the head, and the bluish-grey colour of the thick fur of the back and sides, the flanks, under-parts, and legs being handsomely marked with black and white. Height at shoulder about 36 inches; weight about 130 lbs. In the complete absence of glands on the face, and probably between the hoofs, the bharal differs from the more typical sheep and resembles the goats.

Distribution.—From Hunza, and Shigar, in Baltistan, and near Sanju, south-east of Yarkand, to Sze-chuen, and from the main axis of the Himalaya, or locally some distance south of the same, to the Kuenlun and Altyn Tag; in summer usually met with at elevations between 14,000 and 16,000 feet, and apparently never found below about 10,000 feet.

| Length on front curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|--------------------------------|---------------------|------------------|-----------------------|---|
| -32 $\frac{1}{2}$ | ... | 12 | Milam Pass . . . | Major W. de L. Williams. |
| 31 $\frac{1}{2}$ | 13 $\frac{1}{2}$ | 22 $\frac{1}{2}$ | Ladak . . . | J. Campbell of Kilberry. |
| 30 $\frac{7}{8}$ | 12 $\frac{1}{4}$ | 21 $\frac{7}{8}$ | Garhwal . . . | A. O. Hume. |
| 30 $\frac{1}{2}$ | 10 | 18 $\frac{1}{2}$ | ? | Capt. F. G. T. Deshon (King Edward's Hospital for Officers). |
| ¹ -30 $\frac{1}{2}$ | 11 | 15 $\frac{1}{2}$ | Ladak . . . | Major P. H. G. Powell-Cotton. |
| 30 | 13 $\frac{1}{4}$ | 25 $\frac{1}{4}$ | Do. . . . | Hon. Walter Rothschild. |
| 30 | 11 | 24 | Hanle, Spiti . . . | Major B. L. Carew. |
| -30 | ... | ... | Baba Pass . . . | Major R. W. Johnston. |
| 29 $\frac{1}{2}$ | 11 $\frac{5}{8}$ | 25 $\frac{1}{2}$ | ? | H.R.H. the Duke of Saxe- Coburg and Gotha. |
| 29 $\frac{1}{2}$ | 12 | 26 $\frac{1}{2}$ | Northern Sikhim . . . | Major A. Pearse. |
| -29 | 12 | ... | ? | Lieut.-Col. A. E. Ward. |
| 28 $\frac{3}{4}$ | 10 $\frac{1}{2}$ | 21 $\frac{1}{2}$ | ? | Major Lord C. Fitzmaurice. |
| 28 $\frac{3}{4}$ | 12 $\frac{1}{2}$ | 22 | Chang-chenmo . . . | Capt. B. H. Shaw-Stewart. |
| 28 $\frac{1}{2}$ | 11 $\frac{1}{2}$ | 16 $\frac{1}{4}$ | ? | Capt. C. A. Vivian. |
| 28 $\frac{1}{2}$ | 12 $\frac{1}{4}$ | 26 $\frac{1}{2}$ | Hanle . . . | Major F. W. H. Walshe. |
| -28 $\frac{1}{2}$ | 10 $\frac{1}{2}$ | ... | ? | Indian Museum. |
| 28 | 11 | 20 $\frac{1}{4}$ | ? | British Museum (Hume Collec- tion). |
| 28 | 11 | 16 | Hanle . . . | Arnold Pike. |
| 27 $\frac{5}{4}$ | 10 $\frac{1}{2}$ | 23 $\frac{1}{2}$ | ? | R. H. Edmondson. |
| 27 $\frac{3}{4}$ | 10 $\frac{1}{4}$ | 10 | Ladak . . . | Capt. G. Campbell. |
| 27 $\frac{1}{2}$ | 13 | 34 | Kumaon . . . | E. R. Neave. |
| 27 $\frac{1}{2}$ | 10 $\frac{3}{4}$ | 16 $\frac{3}{4}$ | ? | C. P. Radclyffe. |
| 27 $\frac{1}{4}$ | 11 | 21 $\frac{1}{2}$ | Ladak . . . | St. George Littledale. |
| 27 $\frac{1}{4}$ | 12 | 25 $\frac{1}{4}$ | Do. . . . | Col. H. Appleton. |
| 27 | 12 $\frac{1}{4}$ | 22 $\frac{1}{2}$ | Do. . . . | R. S. H. Walpole. |
| -27 | 11 $\frac{1}{2}$ | ... | Do. . . . | Major C. MacI. Ritchie. |
| 27 | 11 $\frac{1}{2}$ | 28 | Tibet . . . | Major C. S. Cumberland. |
| -26 $\frac{1}{2}$ | 12 | 29 | Ta-chi-lu . . . | M. Mitchell. |

- Owner's measurements.

¹ Picked up.



Head of Arui.

The ARUI, UDAD, or BARBARY SHEEP (*Ovis lervia*).

(Also known as *Ovis tragelaphus* and *Ammotragus lervia*.)

The only wild sheep found throughout the continent of Africa is the arui or fechtal of the Arabs, the udad or Barbary sheep of naturalists; a species with horns not very unlike those of the bharal, and also lacking glands on the face, but readily distinguished by its uniformly tawny colour, the fringe of long hair depending from the throat, chest, and the upper portion of the fore-legs, and the unusual length of the tail, which exceeds that of all other wild sheep. In the length of this appendage the arui approaches domesticated sheep, of which, however, it is not the ancestor. Height at shoulder about 3 feet 3 inches.

Distribution.—The mountains of Northern and North-Eastern Africa, from Morocco to Egypt, and thence southwards nearly to Khartum, in about lat. 16° N.

| Length on outside curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|-----------------------------|---------------------|-------------------|----------------------|----------------------------------|
| 33 $\frac{1}{4}$ | 13 $\frac{1}{4}$ | 12 $\frac{3}{4}$ | Algeria . . . | Abe Bailey. |
| 29 $\frac{1}{8}$ | 12 $\frac{1}{2}$ | 19 | Do. . . . | V. Cholmondeley. |
| 28 $\frac{3}{4}$ | 12 | 14 $\frac{3}{4}$ | Do. . . . | R. A. Cooper. |
| 28 $\frac{1}{2}$ | 11 $\frac{1}{2}$ | 18 | Do. . . . | British Museum (Hon. John Ward). |
| 28 $\frac{1}{2}$ | 11 $\frac{5}{8}$ | 18 $\frac{1}{2}$ | Do. . . . | Sir Edmund G. Loder, Bart. |
| -28 | 11 $\frac{1}{2}$ | 16 $\frac{1}{2}$ | S. Tunisia . . . | J. I. S. Whitaker. |
| -27 $\frac{3}{4}$ | 11 $\frac{1}{4}$ | 14 $\frac{9}{16}$ | Algeria . . . | Viscount Edmond de Poncins. |
| -27 $\frac{1}{2}$ | 12 $\frac{5}{8}$ | 13 $\frac{1}{8}$ | ? . . . | Imperial Museum, Vienna. |
| 27 $\frac{1}{2}$ | 12 | 21 | Tunisia . . . | P. H. Thomas. |
| 26 $\frac{1}{2}$ | 11 | 19 | Algeria . . . | W. H. Lindsay. |
| 26 | 13 | 24 | ? . . . | A. L. Butler. |
| 25 $\frac{1}{2}$ | 11 $\frac{1}{2}$ | 17 $\frac{1}{2}$ | Algeria . . . | Hon. John Ward. |
| 25 $\frac{1}{2}$ | 11 $\frac{1}{2}$ | 17 | Do. . . . | F. de Murietta. |
| 25 $\frac{1}{2}$ | 10 $\frac{5}{8}$ | 16 | Do. . . . | Col. G. J. Cuthbert. |
| 24 $\frac{3}{4}$ | 11 $\frac{1}{2}$ | 17 $\frac{1}{2}$ | Do. . . . | E. Richardson Cox. |
| 24 $\frac{3}{4}$ | 11 $\frac{5}{8}$ | 18 $\frac{1}{4}$ | Do. . . . | H. G. Watson. |
| 22 $\frac{3}{4}$ | 10 $\frac{1}{2}$ | 22 $\frac{1}{4}$ | Do. . . . | F. M. Bailey. |
| 22 | 11 $\frac{1}{4}$ | 16 | Red Sea Province . . | R. Wavell-Paxton. |
| 21 $\frac{1}{4}$ | 10 $\frac{1}{4}$ | 18 $\frac{1}{2}$ | Do. . . . | Capt. S. S. Flower. |
| 21 | 10 $\frac{1}{4}$ | 15 $\frac{1}{8}$ | Do. . . . | G. C. Whitaker. |
| 21 | 11 $\frac{1}{4}$ | 18 $\frac{1}{2}$ | W. of Dongola . . . | Earl of Kingston. |
| ♀ -20 $\frac{1}{4}$ | 10 | 16 | Algeria . . . | A. E. Pease. |
| ♀ 16 $\frac{5}{8}$ | 8 $\frac{3}{4}$ | 19 | Red Sea Province . . | R. Wavell-Paxton. |
| ♀ -16.8 | 7.6 | 14.2 | Egypt. . . . | Prince Henry of Liechtenstein. |

- Owner's measurements.



Skull and Horns of Rocky Mountain Bighorn.

The BIGHORN SHEEP (*Ovis canadensis*).

(Also known as *Ovis cervina*.)

The bighorn of the American continent, inclusive of its local races, is a large sheep, distinguished from the Asiatic argalis, among other features, by the comparative smoothness of the horns, in which the outer front angle is prominent and the inner one rounded off, and also by the smaller size of the face-glands. There is a well-marked whitish patch on the rump, but the amount of white on the under-parts and legs shows considerable local variation. In the typical Rocky Mountain race (*O. canadensis typica*) the ears are long and pointed, with short hair, and the horns, which are very heavy, diverge but little outwards, and generally have the tips broken. The Californian *O. canadensis nelsoni* is a paler southern race. On the other hand, in *O. canadensis stonei* of the North-West Territories the colour of the back is very dark, and the white on the belly and legs sharply defined. Both in this race and the white *O. canadensis dalli* of Alaska the horns are lighter, more divergent, and more sharply pointed, while the ears tend to become shorter, blunter, and more hairy. The grey *O. c. fannini* tends to connect *stonei* with *dalli*, and as a matter of fact all three intergrade. Height at shoulder about 3 feet 2 inches. Weight about 350 lbs.

The horns of the ewes are very small in comparison with those of the

rams, seldom measuring more than 15 inches on the curve from base to tip. Large male horns are now difficult to obtain, and of late years it is seldom that those of fresh-killed specimens are seen exceeding 38 inches on the curve from tip to tip.

Distribution.—The range of the American representatives of the bighorn extends from the Rocky Mountains southwards to Sonora, Northern Mexico, and California, and northwards to Alaska and the shores of Bering Sea. On the Asiatic side of Bering Strait the species is represented by two races nearly allied to the northern New World forms.

A.—**ROCKY MOUNTAIN BIGHORN** (*O. canadensis typica*).

Specimens referable to some of the other American races are included in this list.

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|----------------|-------------|----------------------------|-------------------------------|
| 44½ | 17 | 21 | Near Golden, B.C. . . | Madison Grant. |
| 42½ | 16¼ | 25¾ | Lower California . . | American National Collection. |
| 42 | 16 | ... | Wyoming . . . | T. W. H. Clarke. |
| —... | 17¼ | ... | Do. . . . | Do. |
| 42 | 17½ | 15 | Alberta . . . | G. L. Harrison. |
| 41¾ | 17½ | 19 | Rocky Mountains . . | N. J. Dinnen. |
| 41½ | 15 | ... | Kootenay, B.C. . . | Provincial Museum, B.C. |
| 40¾ | 16½ | ... | Yellowstone . . . | British Museum. |
| 40½ | 16½ | 17 | S.E. of British Columbia . | American National Collection. |
| 40¼ | 15¼ | 20¼ | ? | Sir Edmund G. Loder, Bart. |
| 40 | 15 | 21½ | British Columbia . . | J. W. R. Young. |
| 39¾ | 14½ | 23½ | Do. . . . | G. L. Harrison. |
| 39½ | 15¾ | ... | Colorado . . . | St. George Littledale. |
| 39½ | 16½ | 24¾ | Montana . . . | British Museum. |
| 39½ | 15½ | 19 | ? | Sir Edmund G. Loder, Bart. |
| 39¼ | 17¾ | ... | Mexico . . . | G. L. Harrison. |
| 38¾ | 15½ | 22 | ? | Gerald Buxton. |
| 38¼ | 16¾ | ... | Bighorn Mountains . . | Sir H. Seton-Karr. |
| 38¼ | 15¼ | 19¼ | Montana . . . | Edmund Littledale. |

Owner's measurements.

| Length on front curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|---------------------------|---------------------|------------------|------------------|--|
| 38 $\frac{1}{4}$ | 16 | 19 | N.W. Territories | S. Ratcliff. |
| 38 | 17 | . | Alberta, N.W.T. | Arnold Pike. |
| 38 | 18 | 21 | ? | Hon. Walter Rothschild. |
| 37 $\frac{3}{4}$ | 15 $\frac{3}{8}$ | 23 $\frac{3}{8}$ | Mexico | J. A. H. Drought. |
| 37 $\frac{3}{4}$ | 16 $\frac{1}{4}$ | 22 $\frac{1}{2}$ | British Columbia | J. O. Shields. |
| 37 $\frac{1}{2}$ | 16 | 15 | Do. | Col. A. Charlesworth. |
| 37 $\frac{1}{4}$ | 15 $\frac{1}{2}$ | 16 | Do. | J. Turner-Turner. |
| 37 | 16 $\frac{1}{4}$ | .. | Montana | Major Maitland Kirwan. |
| 37 | 16 $\frac{3}{8}$ | 16 | British Columbia | R. H. Venables Kyrke. |
| 37 | 15 $\frac{1}{4}$ | 19 $\frac{1}{2}$ | Wyoming | H. A. C. Darley. |
| 37 | 15 $\frac{1}{2}$ | 18 $\frac{1}{2}$ | Do. | Lord Rodney. |
| 36 $\frac{3}{4}$ | 19 | 15 | British Columbia | C. H. Kennard. |
| 36 $\frac{3}{4}$ | 15 $\frac{1}{4}$ | 22 $\frac{1}{2}$ | Wyoming | Earl of Lonsdale. |
| 36 $\frac{3}{4}$ | 14 $\frac{1}{2}$ | 22 $\frac{1}{2}$ | Do. | A. Willis. |
| 36 $\frac{1}{2}$ | 16 $\frac{1}{2}$ | . | Do. | Thomas Bate. |
| 36 $\frac{1}{2}$ | 14 | ... | ? | J. D. Cobbold. |
| 36 $\frac{1}{2}$ | 15 $\frac{1}{4}$ | 19 $\frac{1}{2}$ | ? | Capt. C. R. E. Radclyffe. |
| 36 | 15 | 9 | Wyoming | J. L. Scarlett. |
| 36 | 14 $\frac{3}{4}$ | 16 $\frac{1}{2}$ | Montana | R. H. Sawyer. |
| 36 | 15 $\frac{3}{4}$ | 19 $\frac{1}{2}$ | Mexico | J. C. Phillips. |
| 36 | 14 $\frac{3}{4}$ | 16 | Wyoming | Major G. Dalrymple White. |
| 36 | 15 $\frac{1}{2}$ | 18 | Lower California | R. O. Crewe Read. |
| 35 $\frac{3}{4}$ | 15 $\frac{1}{4}$ | 20 | Mexico | R. F. Glyn. |
| 35 $\frac{3}{4}$ | 13 $\frac{3}{4}$ | 17 $\frac{1}{2}$ | British Columbia | Hon. S. Tollemache. |
| 35 $\frac{1}{2}$ | 16 | 21 | Do. | T. P. Kempson. |
| 35 $\frac{1}{4}$ | 15 $\frac{1}{4}$ | 18 $\frac{1}{2}$ | Do. | Sir Peter Walker, Bart. |
| 35 | 14 | 18 $\frac{1}{2}$ | Do. | Admiral Sir Michael Culme- Seymour, Bart. |
| 35 | 14 | 16 | Wyoming | Gerald Hardy. |
| 35 | 16 $\frac{1}{2}$ | 18 $\frac{1}{4}$ | Mexico | C. Sheldon. |
| 34 $\frac{3}{4}$ | 14 $\frac{1}{2}$ | ... | Wyoming | T. D. M. Cardeza. |
| ♀ 10 $\frac{1}{2}$ | 5 $\frac{1}{2}$ | 13 | British Columbia | A. Neilson. |

- Owner's measurements.

B.—WHITE BIGHORN (*O. canadensis dalli*).

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|------------------|------------------|--------------|-------------------------------|
| -49 $\frac{1}{4}$ | 14 $\frac{1}{2}$ | 29 $\frac{3}{4}$ | Yukon . . . | Major A. L. Snyder. |
| 47 | 13 $\frac{3}{4}$ | 28 | Do. . . . | Lieut. R. C. Dalglish, R.N. |
| 43 $\frac{1}{2}$ | 15 $\frac{1}{2}$ | 26 | Alaska . . . | His Majesty the King. |
| 43 | 13 $\frac{1}{2}$ | 27 $\frac{1}{4}$ | Do. . . . | Hon. Walter Rothschild. |
| -41 $\frac{1}{4}$ | 12 $\frac{1}{2}$ | 28 $\frac{1}{2}$ | Do. . . . | J. C. Phillips. |
| 41 | 14 | 23 $\frac{3}{4}$ | Do. . . . | M. Egerton. |
| 40 $\frac{3}{4}$ | 12 $\frac{1}{4}$ | 27 $\frac{1}{2}$ | Do. . . . | F. T. Colby. |
| 40 | 14 | 21 | Do. . . . | J. Todd. |
| 39 $\frac{3}{4}$ | 13 | 22 $\frac{1}{2}$ | Do. . . . | Hon. Walter Rothschild. |
| 38 $\frac{1}{2}$ | 14 | 24 $\frac{1}{2}$ | Do. . . . | David T. Hanbury. |
| -38 $\frac{3}{8}$ | 13 | 19 $\frac{7}{8}$ | Do. . . . | American National Collection. |
| 38 $\frac{1}{4}$ | 12 $\frac{1}{2}$ | 21 $\frac{1}{4}$ | Do. . . . | P. B. Vander Byl. |
| 38 | 13 $\frac{1}{4}$ | 18 | Do. . . . | A. E. Butter. |
| 37 $\frac{3}{4}$ | 15 $\frac{1}{2}$ | 29 $\frac{1}{2}$ | Yukon . . . | Surg. C. R. Rickard, R.N. |
| 37 $\frac{1}{4}$ | 13 $\frac{3}{4}$ | 21 $\frac{1}{4}$ | Alaska . . . | Lord Elphinstone. |
| 37 | 13 $\frac{3}{4}$ | 20 $\frac{1}{2}$ | Do. . . . | Hon. J. C. Lister. |
| 36 $\frac{1}{4}$ | 13 | 18 | Do. . . . | R. F. Glyn. |
| 36 | 14 $\frac{1}{2}$ | 17 $\frac{3}{4}$ | Do. . . . | C. G. Cowan. |
| 36 | 12 $\frac{1}{2}$ | 18 | Do. . . . | Capt. C. R. E. Radclyffe. |
| ♀ 10 $\frac{5}{8}$ | 4 $\frac{1}{2}$ | 5 $\frac{3}{4}$ | Do. . . . | Rowland Ward. |

C.—GREY BIGHORN (*O. canadensis fannini*).

A race characterised by the grey colour of the back.

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|------------------|------------------|--------------------|-----------------------------|
| 42 $\frac{1}{2}$ | 14 | 29 $\frac{1}{4}$ | Yukon . . . | M. Egerton. |
| -40 $\frac{1}{2}$ | 13 | 20 | Near Dawson City . | Provincial Museum, B.C. |
| 37 | 13 $\frac{3}{4}$ | 18 $\frac{1}{4}$ | Yukon . . . | Hon. Walter Rothschild. |
| 35 $\frac{3}{4}$ | 14 | 24 $\frac{3}{4}$ | Do. . . . | W. H. Bell. |
| -35 | 15 $\frac{1}{4}$ | ... | Do. . . . | Ph. Oberländer. |
| ♀ 9 | 5 $\frac{1}{2}$ | 9 $\frac{1}{2}$ | Do. . . . | Prince Colloredo Mannsfeld. |

- Owner's measurements.



Head of Black Bighorn. Shot by Col. Max C. Fleischmann.

D.—BLACK BIGHORN (*O. canadensis stonei*).

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|----------------|-------------|---------------|---------------------------------|
| 44 | 14 | 25 | Cassiar . . . | Col. Max C. Fleischmann. |
| -42 | 15½ | 23½ | Do. . . . | Ph. Oberländer. |
| -41½ | 14 | 29 | Do. . . . | C. F. Collins. |
| 40¾ | 13¾ | 25 | Do. . . . | Lord Hindlip. |
| 40 | 14 | ... | Do. . . . | C. D. Butler. |
| 39½ | 12½ | 27½ | Do. . . . | Col. H. Appleton. |
| 38¼ | 13¼ | 19 | Do. . . . | P. N. Graham. |
| 37¼ | 13½ | 18½ | Do. . . . | R. Hayne. |
| 36¾ | 12½ | 21¾ | Do. . . . | British Museum (J. M. Hanbury). |
| 36½ | 13¼ | ... | Do. . . . | Sir A. Armstrong, Bart. |
| -36 | 13½ | 23¼ | Do. . . . | Count C. Hoyos. |
| 35½ | 13¾ | 22 | Do. . . . | Hon. Walter Rothschild. |
| 35½ | 14 | 19 | Do. . . . | Lord Hindlip. |
| -35½ | 15½ | 20 | Do. . . . | Lieut. R. C. DalGLISH, R.N. |
| 35 | 14½ | 20¾ | Do. . . . | F. C. Stern. |

- Owner's measurements.



Skull and Horns of Kamchatkan Bighorn. Shot by Prince E. Demidoff.

E.—**KAMCHATKAN BIGHORN** (*O. canadensis nivicola*).

Although the Kamchatkan wild sheep is readily distinguished from the Rocky Mountain bighorn (*O. canadensis typica*) by the slenderness of the horns at the points, and their wider tip-to-tip measurement as well as by the shorter, blunter, and more thickly haired ears, the shorter face, the longer hair of the body, and the inferior size of the white patch on the rump, yet the white Alaskan and the black bighorn, in which the horns are of the Kamchatkan type, and the ears are shorter than in the Rocky Mountain race, tend to bridge over these points of difference. These transitions indicate that all the bighorns are essentially local modifications of the same animal; the Asiatic forms being, as might be expected, the most aberrant. Height at shoulder about 37 or 38 inches; weight about 250 lbs.

Distribution.—Kamchatka.

| Length on front curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|------------------------------|---------------------|------------------|-----------------|--------------------------|
| 39 $\frac{1}{4}$ | 14 $\frac{1}{2}$ | 28 $\frac{1}{4}$ | Kamchatka . . . | Prince E. Demidoff. |
| 38 $\frac{3}{4}$ | 14 $\frac{1}{2}$ | 30 $\frac{3}{8}$ | Do. . . . | Do. |
| -38 | 13 $\frac{1}{2}$ | 26 | Do. . . . | Dr. F. H. H. Guillemand. |
| 35 $\frac{3}{4}$ | 13 $\frac{1}{4}$ | 24 | Do. . . . | P. Niedieck. |

- Owner's measurements.

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|----------------|-------------|------------------------|--|
| 35½ | 14½ | 24½ | Kamchatka | St. Petersburg Museum. |
| 35½ | 14 | 20½ | Do. | Prince E. Demidoff. |
| 35½ | 14½ | 24½ | Do. | British Museum (St. George Little-dale). |
| 34½ | 14½ | 25½ | Do. | St. George Littledale. |
| 34 | 13½ | 23½ | Do. | Hon. Walter Rothschild. |
| 33 | 13½ | 22 | Do. | Capt. C. R. E. Radclyffe. |
| 32½ | 13½ | 23 | Do. | Sir Edmund G. Loder, Bart. |
| 31½ | 14 | 20 | Do. | Dublin Museum. |
| 31½ | 13½ | 21 | Cape Chepunske | Col. J. Biddulph. |
| 31½ | 13½ | 24 | Kamchatka | Dublin Museum. |
| 30½ | 14½ | 25½ | Do. | Dr. Albert von Stephani. |
| ♀ 10½ | 5 | 14½ | Do. | Hon. Walter Rothschild. |
| ♀ 8½ | 5½ | 9½ | Do. | British Museum. |

F.—CLIFTON'S BIGHORN (*O. canadensis borealis*).

An East Siberian race closely allied to the last, but of a generally lighter colour, with a much larger and less well-defined white rump-patch, more white on the face, a darker tail, and larger ears.

Distribution.—The Stanovoi Mountains, the range between the valleys of the Yana and Lena, and other parts of Eastern Siberia. The only known examples in England were shot by Mr. J. Talbot Clifton, by whom a male was presented to the British Museum in 1902.

| Length on front curve. | Circumference | Tip to Tip. | Locality. | Owner. |
|------------------------|---------------|-------------|---------------------|-------------------------------------|
| 37½ | 11 | 22½ | Yana Valley | J. Talbot Clifton. |
| 33 | 13 | 22½ | Do. | British Museum (J. Talbot Clifton). |
| 32½ | 11½ | 24½ | Do. | J. Talbot Clifton. |
| ♀ 5½ | 3½ | 5½ | Do. | Do. |

— Owner's measurements.

The ARGALI SHEEP (*Ovis ammon*).

In common with the following members of the genus *Ovis*, this splendid sheep has the transverse wrinklins of the horns well developed, and glands present on the face, with pits for their reception in the skull. In the present species the horns of the adult rams are characterised by their large size and massiveness. The hind-quarters show a large amount of white, extending over the greater part of the thighs; and in winter the throat may be furnished with a voluminous ruff of long white hairs, which disappears in summer. Height at shoulder reaching in some races to about 4 feet; weight of adult male about 22 stone.

Regarding all forms of big Central Asiatic sheep, or argalis, as races of a single species, they may be classified as follows:—(1) The Tibetan race, *Ovis ammon hodgsoni*, of Tibet, with thick, massive horns, which do not form more than one complete circle, and have a maximum length of from $48\frac{1}{2}$ inches to 57 inches, and a girth of from 17 inches to 19 inches; (2) *O. a. jubata*, of Mongolia, nearly allied to the last, but insufficiently known; (3) *O. a. typica*, of the Altai, with the massive horns forming more than a complete circle, rounded in front, approximated to the sides of the face, and having a maximum length of from 59 inches to 62 inches, and a girth of from 18 inches to 20 inches; (4) *O. a. storcki*, of south-eastern Kamchatka, distinguished by its small size; (5) *O. a. sairensis*, from the Saïar Mountains, with small but relatively massive horns, measuring from about $45\frac{1}{2}$ inches to 47 inches in length, and $14\frac{1}{2}$ inches to $15\frac{1}{2}$ inches in girth; (6) *O. a. karelini*, of the Alatau and adjacent parts of the Altai, with the horns more angulated in front than in *O. a. typica*, diverging more from the sides of the face, and having a maximum length ranging from $45\frac{1}{2}$ inches to $49\frac{1}{2}$ inches, and a girth of about 16 inches; (7) *O. a. littledalei*, of the Tian Shan, with long, thin horns, of which the maximum length ranges from 55 inches to 58 inches, with a girth of 17 inches or a fraction more; (8) *O. a. nigrimontana*, a small outlying race from the Karatau of Bokhara, allied to *littledalei*; (9) *O. a. poli*, of the Pamir, in which the horns are narrower and longer than in any of the other races, forming much more than one complete circle, with the front surface markedly angulated, and the maximum length ranging from 69 inches to 75 inches, and the girth from $14\frac{1}{2}$ inches to 16 inches, or, rarely, 17 inches.

Although the gradation in horn-characters may not be absolutely complete from the *hodgsoni* to the *poli* type, it is sufficiently well marked to justify the view here taken of the mutual relationships of these wild sheep.

It cannot be guaranteed that all the undermentioned specimens are correctly classified.

Distribution.—The Highlands of Central Asia, from Bokhara to Mongolia.



Head of Tibetan Argali. Shot by Capt. F. M. Bailey.

A.—**TIBETAN ARGALI** (*O. ammon hodgsoni*).

Chiefly distinguished from the Siberian argali by the development of a distinct white ruff on the throat of the males, at least in the winter coat, and also by the less degree of lateral expansion of the horns, which do not form more than a single complete circle, are not "nipped in" below the eyes, and generally broken at the tips. The wrinkles on the horns are perhaps somewhat less prominent, and the outer front angle is frequently well developed.

The height at the shoulder is apparently rather less than in the typical argali. A ram shot by Lieut.-Col. Greenaway measured 76 inches from the nose to the tip of the tail, and weighed about 212 lbs. In another ram, whose age was estimated at 10 years, the height at the shoulder was 43 inches, the girth 50 inches, and the weight 205 lbs. (Major Powell-Cotton).

Distribution.—The plateau of Tibet, from Northern Ladak to the districts north of Sikkim, and northwards to the Kuenlun; eastern limits unknown.

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|--------------------------------|------------------|------------------|--------------------|-----------------------------------|
| 57 | 18 $\frac{1}{2}$ | 29 | Tibet | Arnold Pike. |
| 50 $\frac{1}{2}$ | 18 $\frac{1}{2}$ | 19 | Pangong Lake . . . | Sir Edmund G. Loder, Bart. |
| -50 | 17 | ... | Tibet | Capt. W. H. Lane. |
| -49 $\frac{1}{2}$ | 18 | | Ladak | Capt. G. W. S. Sherlock. |
| 49 $\frac{1}{2}$ | 19 | 21 $\frac{1}{2}$ | Tibet | Capt. F. M. Bailey. |
| -48 $\frac{1}{2}$ | 19 | | Do. | E. Howard Brooke. |
| 48 | 18 $\frac{1}{2}$ | ... | Do. | Col. T. K. E. Johnston. |
| 48 | 16 | 23 | Rudok | Major G. A. L. Carew. |
| 48 | 18 $\frac{1}{2}$ | 20 | Ladak | Lieut.-Col. H. C. Morland. |
| 48 | 18 | 31 | Do. | Lieut.-Col. Hon. A. Dalzell. |
| 47 $\frac{1}{4}$ | 16 $\frac{1}{2}$ | 24 | Do. | K. C. Zarzhetsky. |
| 47 | 17 | 27 $\frac{1}{2}$ | ? | Col. H. Appleton. |
| -47 | 17 $\frac{1}{2}$ | 18 | ? | Lieut.-Col. G. W. Brazier Creagh. |
| 46 $\frac{1}{2}$ | 19 $\frac{1}{2}$ | 20 | Ladak | A. O. Hume. |
| ¹ -46 $\frac{1}{2}$ | 16 $\frac{1}{2}$ | 21 | Do. | Major P. H. G. Powell-Cotton. |
| 46 $\frac{1}{2}$ | 16 $\frac{3}{4}$ | ... | Do. | Major H. M. Biddulph. |
| -46 | 19 | | ? | Major C. S. Cumberland. |
| 46 | 16 | 17 | ? | Hon. R. A. Ward. |
| 45 $\frac{1}{2}$ | 16 $\frac{1}{2}$ | 17 | ? | Duke of Teck. |
| 45 $\frac{1}{2}$ | 17 $\frac{1}{4}$ | 19 | ? | C. P. Radclyffe. |
| 45 $\frac{1}{4}$ | 17 $\frac{1}{2}$ | 17 $\frac{1}{2}$ | ? | Capt. R. S. Kennedy. |
| 45 $\frac{1}{4}$ | 18 $\frac{1}{2}$ | 19 $\frac{1}{2}$ | ? | C. E. Bryant. |
| 45 | 17 | 16 | Ladak | J. V. Phelps. |
| 45 | 16 | 19 $\frac{1}{2}$ | Do. | P. F. Hadow. |
| 44 $\frac{1}{2}$ | 17 $\frac{1}{4}$ | 19 | Do. | W. A. Conduitt. |
| 44 $\frac{1}{2}$ | 17 | 22 | ? | Capt. F. G. T. Deshon. |
| 44 | 16 | 17 $\frac{1}{2}$ | Ladak | Duke of Bedford. |
| 44 | 16 | 17 $\frac{1}{2}$ | Do. | W. R. Lawrence. |
| 44 | 17 | 18 $\frac{1}{2}$ | Do. | Major C. MacI. Ritchie. |

- Owner's measurements.

¹ Picked up.



Skull and Horns of Siberian Argali.
From a specimen shot by Mr. St. George Littledale in the Altai.

B.—**SIBERIAN ARGALI** (*O. ammon typica*).

A more or less distinct white patch on the rump, not extending on to the thigh, which is dark-coloured like the back; no ruff on the throat, even in the long winter-coat. In summer the coat of old males, which is very short, tends to become more or less light-coloured all over. Height at shoulder from about 45 inches to 4 feet; weight from about 250 to 350 lbs. As in the Tibetan race, considerable individual variation may be noticed in the horns, some having the outer front angle much more developed than usual; it does not appear that these differences can be accounted for by age.

Distribution.—In former times apparently extending from the Baikal Mountains to the Altai; now chiefly restricted to the latter area.

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|------------------|------------------|---------------|---|
| 62 $\frac{1}{4}$ | 19 $\frac{3}{4}$ | 38 $\frac{1}{4}$ | Altai | St. George Littledale. |
| 62 $\frac{1}{4}$ | 19 $\frac{1}{4}$ | 41 $\frac{1}{2}$ | Do. | Col. C. B. Wood. |
| 62 | 19 | 38 $\frac{3}{4}$ | Do. | H. J. Elwes. |
| 61 $\frac{1}{2}$ | 19 $\frac{1}{4}$ | 39 $\frac{1}{4}$ | Do. | British Museum (St. George Littledale). |
| 60 | 20 | 41 | Do. | Lord Elphinstone. |
| 59 $\frac{1}{2}$ | 20 | 41 $\frac{1}{2}$ | Do. | Hon. Walter Rothschild. |
| 59 $\frac{1}{8}$ | 19 $\frac{1}{8}$ | 38 $\frac{1}{4}$ | Do. | St. George Littledale. |
| -59 $\frac{1}{8}$ | 19 $\frac{1}{2}$ | 40 | Do. | American National Collection. |
| 59 | 18 | 36 $\frac{1}{4}$ | Do. | H. W. Seton-Karr. |

. Owner's measurements.

RECORDS OF BIG GAME

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|------------------|------------------|-----------------|----------------------------|
| 59 | 19 | 37 $\frac{1}{2}$ | Altai | Ford G. Barclay. |
| 56 $\frac{1}{2}$ | 18 $\frac{1}{2}$ | 33 $\frac{1}{2}$ | Do. | Major C. S. Cumberland. |
| 56 | 18 $\frac{1}{2}$ | 35 | Do. | British Museum. |
| 56 | 17 $\frac{3}{4}$ | 33 | Do. | E. W. Dixon. |
| 55 | 18 | 39 | Do. | Prince E. Demidoff. |
| 55 | 18 | 43 | Do. | Col. H. Appleton. |
| 54 $\frac{1}{2}$ | 19 | 33 | Do. | R. Hayne. |
| 53 $\frac{3}{4}$ | 21 $\frac{3}{4}$ | 33 $\frac{1}{2}$ | Do. | Duke of Bedford. |
| 53 $\frac{1}{4}$ | 19 | 22 | Do. | St. George Littledale. |
| 53 | 18 | 39 | Do. | W. E. Pease. |
| 52 $\frac{1}{2}$ | 19 $\frac{1}{2}$ | 39 | Do. | J. R. Bradley. |
| 52 | 21 | 39 $\frac{1}{2}$ | Do. | P. B. Vander Byl. |
| 51 | 18 $\frac{1}{4}$ | 29 $\frac{1}{4}$ | Do. | Col. H. G. C. Swayne. |
| 51 | 19 $\frac{1}{4}$ | 33 | Do. | St. George Littledale. |
| 50 | 19 $\frac{1}{4}$ | 27 $\frac{1}{4}$ | Do. | Sir Edmund G. Loder, Bart. |
| 49 $\frac{1}{2}$ | 20 $\frac{1}{4}$ | 25 | Do. | St. George Littledale. |
| 47 $\frac{1}{4}$ | 18 $\frac{1}{4}$ | 31 | Do. | R. Hayne. |
| 45 $\frac{1}{4}$ | 18 $\frac{1}{4}$ | 35 | Do. | J. H. Miller. |
| 40 | 16 | 33 | Do. | Princess Demidoff. |
| 26 | 7 $\frac{1}{4}$ | 23 $\frac{1}{4}$ | Do. | Berlin Museum. |

C.—MONGOLIAN ARGALI (*O. ammon jubata*).

Allied to the Tibetan race, having a distinct yellowish-white throat-ruff and generally similar horns, with, in some cases at least, the outer front angles of the latter much rounded off. The white on the buttocks and hind surface more abundant and purer in colour.

Distribution.—Eastern Mongolia and Manchuria to the north of Peking.

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|------------------|------------------|------------------------|--|
| 50 $\frac{1}{2}$ | 18 | 29 | S. Manchuria | Col. J. H. Abbot Anderson. |
| 49 | 16 $\frac{1}{2}$ | 25 | Do. | H. Fowler. |
| 44 $\frac{3}{4}$ | 16 $\frac{1}{2}$ | 23 | Manchuria | H. R. H. Henri de Bourbon, Comte de Bardi. |
| 41 | 17 $\frac{1}{4}$ | 19 $\frac{1}{2}$ | N. Shansi | Major Sir T. S. Tancred, Bart. |



Head of Tibetan Argali.

D.—SAIAR ARGALI (*O. ammon sairensis*).

This rather small sheep is in some respects intermediate between *poli* and *ammon*, but differs from both in having the face brown above and white on the muzzle. The horns are less finely ridged than those of *ammon* and form a longer spiral. The English name of Littledale's sheep was given to this race before *O. littledalei* was described; it is now transferred to the latter.

Distribution.—The Saiar or Sair Mountains.

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|----------------|-------------|--------------------|---|
| 47½ | 15½ | 27 | Saiar Mountains | British Museum (St. George Littledale. Type). |
| 47 | 15¼ | 30 | Do. | American National Collection. |
| 146¼ | 14¼ | 27 | Irtish District | Hon. Walter Rothschild. |
| 46 | 13¼ | 27¾ | Saiar Mountains | J. C. Phillips. |
| 140 | 14¾ | 29½ | Nr. Sairam Lob Nor | Lord Elphinstone. |

- Owner's measurements.

¹ Determination provisional.

E.—ALATAU ARGALI (*O. ammon karelini*).

Characteristics, so far as known, given under heading of the species.

Distribution.—Alatau and adjacent parts of Altai.

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|----------------|-------------|------------------|----------------------------|
| 49½ | 16¼ | 25½ | Alatau Mountains | Sir Edmund G. Loder, Bart. |
| 45½ | 14¾ | 34 | Do. | Do. |

F.—LITLEDALE'S ARGALI (*O. ammon littledalei*).

Larger than *sairensis*, with the same brown forehead and white muzzle, but the ears smaller and rather farther away from the horns, and the latter less "nipped in" below the eyes than in the typical argali, and showing more of their inner surfaces in a front view. A white throat-ruff in winter. This is a "thin-horned" sheep.

Distribution.—The east end of the Tian Shan, to the south-east of Kulja, or Ili.

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|----------------|-------------|--------------|---|
| 58 | 17 | 41¾ | Tian Shan | A. Bayley-Worthington. |
| 57¼ | 17½ | 41 | Do. | Major A. D. G. Gardyne. |
| 55½ | 15 | 45 | Do. | Col. H. Appleton. |
| 55½ | 16¼ | 35¾ | Do. | Capt. J. N. Price Wood. |
| 55 | 16 | 44 | Do. | H. R. H. the Duc d'Orléans. |
| 55 | 16 | 43 | Do. | Lord Osborne Beauclerk. |
| 53½ | 17 | 41¼ | Do. | B. Chew. |
| 53¼ | 15½ | 40½ | Do. | H. Whitaker. |
| 52 | 15¾ | 42¾ | Do. | J. H. Miller. |
| 51½ | 17 | 41½ | Do. | St. George Littledale. |
| 51 | 16½ | 39 | Do. | British Museum (St. George Littledale. Type). |
| 50 | 15 | 36 | S. Tian Shan | D. Carruthers. |

G.—BOKHARA ARGALI (*O. ammon nigrimontana*).

The characters of this race are given under the heading of the species.

Distribution.—The Karatau (Black Mountain) of Bokhara, Russian Turkestan.

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|----------------|-------------|-----------|----------------|
| 35¾ | 10½ | 24 | Bokhara | D. Carruthers. |



Head of Marco Polo's Argali. From Mr. David T. Hanbury's specimen.

II.—FAMIR or MARCO POLO'S ARGALI (O. ammon poli).

Distribution.—The Pamir plateau, extending to Hunza. This argali was first definitely made known in England by specimens obtained during the Second Yarkand Mission under the late Sir D. Forsyth during the years 1873 and 1874; since which date it has been killed by Mr. St. George Littledale, Major C. S. Cumberland, Col. H. Bower, Viscount de Poncins, and other sportsmen.

| Length on front curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|------------------------------|---------------------|----------------|--------------------|---------------------------------------|
| 75 | 16 | 54½ | Pamir . . . | Field-Marshal Earl Roberts. |
| 73 | 15 | 48 | Little Pamir . . . | The late Col. H. C. B. Tanner. |
| 71 | 15½ | 53¾ | Great Pamir . . . | Viscount Edmond de Poncins. |
| 70 | 14½ | 45 | Do. . . . | His Majesty the King. |
| 70 | 17 | 52 | Do. . . . | H.H. the Maharaja of Cooch- Behar. |
| 69½ | 15¼ | 56 | ? | Marquis of Lansdowne. |
| 69½ | 14½ | 39 | Tagdumbash . . . | Sir Edmund G. Loder, Bart. |
| 68½ | 15¼ | 45¾ | Do. . . . | Queen's Own Corps of Guides. |
| 68½ | 15 | 35¾ | ? | Lewis Flower. |

— Owner's measurements.

| Length on front curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|------------------------------|---------------------|------------------|--|---|
| 68 $\frac{3}{4}$ | 15 | 50 $\frac{1}{2}$ | ? | H. J. Elwes. |
| 68 | 17 | 43 | Pamir | Lieut.-Gen. Sir R. Pole-Carew. |
| -68 | 16 | 52 | ? | Indian Museum. |
| -67 $\frac{3}{8}$ | 16 | 53 $\frac{1}{4}$ | ? | Indian Museum (Col. J. Biddulph). |
| -67 | 16 | ... | ? | H.H. the Maharaja of Travancore. |
| 67 | 15 $\frac{1}{2}$ | 42 $\frac{1}{2}$ | ? | Duke of Westminster. |
| 66 $\frac{7}{8}$ | 15 $\frac{5}{8}$ | 46 | Tagdumbash | Sir Edmund G. Loder, Bart. |
| 66 $\frac{7}{8}$ | 13 $\frac{7}{8}$ | 46 $\frac{1}{2}$ | Valley between Little and Great Pamir | A. O. Hume. |
| 66 | 15 $\frac{1}{4}$ | 44 | Do. | British Museum (Hume Collection). |
| 66 | 15 $\frac{1}{4}$ | 42 | ? | A. Leslie Renton. |
| 65 $\frac{1}{2}$ | 16 | 53 | Great Pamir (16,000 feet) . | British Museum (Gen. Sir T. E. Gordon). |
| -65 | 16 | 41 | ? | Dublin Museum. |
| 65 | 16 $\frac{1}{2}$ | 49 $\frac{1}{2}$ | ? | Lieut.-Col. C. F. Blane. |
| 64 $\frac{1}{2}$ | 16 $\frac{1}{2}$ | 46 | Pamir | Major C. C. Ellis. |
| 64 $\frac{1}{4}$ | 16 $\frac{1}{2}$ | 41 | Do. . . . | W. Lawrence. |
| 64 $\frac{1}{4}$ | 15 $\frac{1}{4}$ | 39 | Do. . . . | H. C. V. Hunter. |
| 64 | 15 $\frac{1}{2}$ | 50 | Little Pamir | Major R. P. Cobbold. |
| 64 | 15 | 39 | Do. . . . | A. Ezra. |
| 64 | 15 | 49 | ? | Duke of Portland. |
| 63 $\frac{5}{8}$ | 16 $\frac{1}{8}$ | 42 $\frac{1}{2}$ | Pamir | Hon. Walter Rothschild. |
| 63 | 14 $\frac{3}{8}$ | 32 $\frac{1}{4}$ | Do. . . . | Col. G. D. F. Sullivan. |
| 63 | 16 | 49 $\frac{1}{2}$ | Little Pamir | Bachelors' Club (Major R. P. Cobbold). |
| 62 $\frac{3}{4}$ | 16 $\frac{1}{4}$ | 51 | Tagdumbash | Capt. T. W. Greenfield. |
| 62 $\frac{1}{2}$ | 15 | 57 | Do. . . . | Sir Edmund G. Loder, Bart. |
| 62 | 14 $\frac{1}{2}$ | 43 $\frac{1}{2}$ | Do. . . . | L. C. Sanford. |
| 61 $\frac{1}{2}$ | 15 $\frac{1}{2}$ | 46 $\frac{1}{4}$ | Do. . . . | E. L. Phelps. |
| 60 $\frac{3}{4}$ | 15 $\frac{3}{4}$ | 46 $\frac{3}{4}$ | Pamir | St. George Littledale. |
| 60 | 15 $\frac{1}{4}$ | 46 $\frac{1}{4}$ | Tagdumbash | Capt. T. W. Greenfield. |
| 60 | 15 $\frac{1}{2}$ | 46 | Do. . . . | P. Church. |
| 60 | 15 $\frac{3}{4}$ | 43 | Do. . . . | J. C. Phillips. |
| 59 $\frac{1}{4}$ | 16 | 46 | Do. . . . | Capt. H. H. P. Deasy. |

- Owner's measurements.

| Length on front curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|------------------------------|---------------------|------------------|---------------------|---|
| 59 | 15 $\frac{1}{2}$ | 40 | Tagdumbash . . . | Lord Curzon of Kedleston. |
| 59 | 15 $\frac{3}{4}$ | 41 | ? | Martyn Kennard. |
| 59 | 14 | 42 $\frac{3}{4}$ | Tagdumbash . . . | David T. Hanbury. |
| 59 | 16 $\frac{1}{2}$ | 44 $\frac{1}{4}$ | ? | R. F. Glyn. |
| 58 $\frac{7}{8}$ | 15 $\frac{3}{4}$ | 44 $\frac{3}{4}$ | Tagdumbash . . . | 3rd Gurka Rifles. |
| 57 $\frac{3}{4}$ | 15 $\frac{3}{4}$ | 47 | Pamir . . . | H. M. von Archer. |
| 57 $\frac{1}{2}$ | 16 $\frac{1}{4}$ | 48 | ? | J. Forbes Crombie. |
| 57 $\frac{1}{2}$ | 14 $\frac{3}{8}$ | 43 $\frac{1}{4}$ | ? | Col. C. B. Wood. |
| 57 | 14 $\frac{3}{4}$ | 48 $\frac{1}{2}$ | Russian Pamir . . . | Col. H. Appleton. |
| 57 | 15 $\frac{1}{4}$ | 42 | Tagdumbash . . . | Hon. R. A. Ward. |
| 56 $\frac{7}{8}$ | 15 $\frac{1}{8}$ | 35 $\frac{1}{2}$ | Do. . . | St. George Littledale. |
| 56 | 15 | 44 | Do. . . | E. P. Tennant. |
| 56 | 14 | 45 $\frac{3}{4}$ | ? | Major J. Manners Smith. |
| 56 | 15 $\frac{1}{2}$ | 43 $\frac{1}{2}$ | Pamir . . . | Lieut.-Col. A. H. Hussey. |
| 56 | 14 $\frac{1}{2}$ | 43 | ? | W. O. Bell-Irving. |
| 55 $\frac{3}{4}$ | 15 $\frac{3}{4}$ | 43 | ? | J. Carr Saunders. |
| 55 $\frac{5}{8}$ | 16 $\frac{1}{2}$ | 43 | Pamir . . . | Major C. S. Cumberland. |
| 55 $\frac{1}{2}$ | 16 $\frac{3}{4}$ | 40 | ? | C. P. Radclyffe. |
| 55 $\frac{1}{2}$ | 16 $\frac{1}{4}$ | 46 $\frac{1}{2}$ | Pamir . . . | P. F. Hadow. |
| 54 $\frac{1}{2}$ | 16 $\frac{3}{4}$ | 39 $\frac{1}{2}$ | Do. . . | H.R.H. Prince Pierre d'Orléans and Braganza. |
| 54 $\frac{1}{2}$ | 14 $\frac{2}{3}$ | 43 $\frac{1}{2}$ | Do. . . | Capt. J. B. Mackintosh. |
| 54 $\frac{1}{4}$ | 16 | 34 | Do. . . | A. W. Berg. |
| 53 $\frac{1}{2}$ | 14 $\frac{3}{4}$ | 38 $\frac{3}{4}$ | N. Pamir . . . | R. Hayne. |
| 52 $\frac{1}{4}$ | 15 $\frac{3}{4}$ | 43 $\frac{1}{2}$ | Tagdumbash . . . | Major G. F. Mockler. |
| 47 | 5.90 | 15.75 | Great Pamir . . . | Viscount Edmond de Poncins. |

- Owner's measurements.



Head of Shapo or Ladak Urial.

The URIAL or SHAPO (*Ovis vignei*).

A much smaller sheep than most of the Asiatic argalis, with comparatively slender and well-wrinkled horns of considerable length, which when fully developed curve forwards along the sides of the face; the males with a more or less strongly developed whitish ruff on the throat. General colour varying from rufous brown to grey in summer, with the chest, under-parts, and portions of the legs white, and sometimes blackish "points." Females with small horns. Height at shoulder about 32 inches; weight about 120 lbs.

Distribution.—From Ladak and Zanskar to Russian Turkestan, Afghanistan, Baluchistan, Southern Persia, the North-West Frontier of India, the Punjab Salt-Range, and Sind. Four local races, two of which probably intergrade in the Indus valley, are recognised:—The typical urin of Astor, the sha or shapo of Ladak (*O. vignei typica*) with much black in the ruff; the Kelat urial (*O. v. blanfordi*) of Kelat, Afghanistan and Baluchistan, and the Trans-Indus districts, in which the points of the horns tend to turn up, and the front angles may be knotted; the Punjab urial (*O. v. cycloceros*) of the Cis-Indus Punjab, in which the colour is redder, the ruff much developed, and the horns form a close-coiled spiral; the Kopet-Dagh urial (*O. v. arkal*) of the Ust-Urz plateau and the Kopet-Dagh and Alag-Dagh, in which the front of the horns is much flattened, with the two angles very pronounced, and the ruff wholly white.

A.—SHAPO or LADAK URIAL (*O. vignei typica*).

| Length on front curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|------------------------------|---------------------|-----------------|-----------------|--------------------------------------|
| 39 | $11\frac{3}{4}$ | $15\frac{1}{2}$ | ? | Maj.-Gen. Sir H. S. Rawlinson, Bart. |
| $38\frac{5}{8}$ | $12\frac{1}{4}$ | $11\frac{1}{4}$ | ? | J. Carr Saunders. |
| $38\frac{1}{2}$ | $11\frac{1}{4}$ | $8\frac{1}{2}$ | Near Leh . . . | E. L. Phelps. |
| $36\frac{1}{4}$ | $11\frac{1}{2}$ | $4\frac{1}{4}$ | Do. . . . | A. O. Hume. |
| $-36\frac{1}{4}$ | $11\frac{3}{4}$ | ... | Do. . . . | Lieut.-Col. A. E. Ward |
| $36\frac{1}{4}$ | $10\frac{3}{4}$ | $11\frac{5}{8}$ | Baltistan . . . | Major Sir T. A. Salt, Bart. |
| $34\frac{3}{4}$ | 11 | ... | ? | East India Club. |
| $33\frac{1}{4}$ | 12 | 12 | Ladak | Arnold Pike. |
| $-33\frac{1}{2}$ | $11\frac{1}{2}$ | $10\frac{5}{8}$ | Do. . . . | Sir Edmund G. Loder, Bart. |
| 33 | 11 | $17\frac{1}{2}$ | Do. . . . | P. F. Hadow. |
| 33 | $10\frac{1}{2}$ | 15 | Do. . . . | Major F. W. H. Walshe. |
| $32\frac{1}{4}$ | 10 | 11 | Do. . . . | Capt. D. L. R. Lorimer. |
| $31\frac{3}{4}$ | $10\frac{1}{4}$ | 14 | Do. . . . | Capt. L. Trevor Goff. |
| $31\frac{3}{4}$ | $10\frac{1}{4}$ | 7 | Do. . . . | Col. F. C. Lister-Kay. |
| $31\frac{1}{2}$ | 10 | 15 | Gilgit | Major B. E. M. Gurdon. |
| $31\frac{1}{2}$ | $10\frac{1}{4}$ | $13\frac{1}{2}$ | Do. . . . | Capt. B. H. Shaw-Stewart. |
| 31 | 11 | ... | Do. . . . | J. D. Cobbold. |
| 31 | $11\frac{1}{4}$ | 12 | Ladak | N. C. Cockburn. |
| $30\frac{1}{2}$ | $8\frac{1}{2}$ | 19 | Gilgit | Capt. K. Dingwall. |
| $30\frac{1}{4}$ | $9\frac{3}{4}$ | $6\frac{1}{4}$ | Chitral | Capt. A. W. Robertson-Glasgow. |
| 30 | $11\frac{3}{4}$ | 16 | ? | Hon. Walter Rothschild. |
| 30 | 10 | 10 | Ladak | Lady Jenkins. |
| $29\frac{7}{8}$ | $10\frac{3}{8}$ | ... | ? | H. C. V. Hunter. |
| $29\frac{1}{2}$ | $10\frac{1}{4}$ | 9' | ? | Col. C. B. Wood. |
| $29\frac{1}{2}$ | $10\frac{1}{2}$ | 13 | Ladak | J. V. Phelps. |

- Owner's measurements.



Head of Kelat Urial from Waziristan. Major F. H. Taylor's specimen.

B. and *C.*—**KELAT and PUNJAB URIALS (*O. vignei blanfordi* and *cycloceros*).**

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|------------------|------------------|--------------------------------|---|
| -39 $\frac{3}{4}$ | ... | ... | ? | 27th Punjab (Major G. Dodd). |
| 39 $\frac{1}{2}$ | 10 $\frac{3}{4}$ | 18 $\frac{1}{2}$ | Waziristan . . . | Major F. H. Taylor. (See illustration.) |
| 38 $\frac{3}{4}$ | 9 $\frac{3}{4}$ | 9 $\frac{1}{2}$ | Chita Oapar Range, near Attock | Royal Artillery Mess, Woolwich (Lieut-Col. C. F. Massey). |
| -38 | 10 $\frac{3}{4}$ | 9 | Waziristan . . . | Mess, S.W. Militia, Wana. |
| -36 $\frac{3}{4}$ | 9 $\frac{5}{8}$ | 5 $\frac{5}{8}$ | ? | Dr. Albert von Stephani. |
| 36 $\frac{3}{4}$ | 9 | 9 | Hills north - west of Peshawur | 60th Rifles (Lord Walter Fitzgerald). |
| 36 | 10 $\frac{1}{4}$ | 15 | Persia . . . | Hon. Walter Rothschild. |
| 35 $\frac{1}{2}$ | 10 $\frac{1}{2}$ | 16 | Gulran, Afghanistan . | British Museum (Dr. J. Aitchison). |
| -35 $\frac{1}{2}$ | 10 $\frac{1}{4}$ | 20 $\frac{3}{4}$ | ? | 21st Punjab Infantry. |
| 35 $\frac{1}{4}$ | 10 $\frac{1}{2}$ | 9 $\frac{1}{2}$ | Waziristan . . . | Major F. H. Taylor. |
| 34 | 9 $\frac{3}{4}$ | 4 $\frac{1}{2}$ | Salt-Range . . . | Capt. L. Trevor Goff. |
| 33 $\frac{1}{2}$ | 9 $\frac{1}{4}$ | 12 $\frac{1}{2}$ | Do. . . . | A. O. Hume. |

- Owner's measurements.

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|-----------------|------------------|------------------------|-----------------------------------|
| 33 $\frac{1}{2}$ | 9 $\frac{5}{8}$ | 8 $\frac{3}{4}$ | ? | Major R. L. Tottenham. |
| 33 $\frac{1}{2}$ | 9 $\frac{3}{4}$ | 15 $\frac{3}{4}$ | Waziristan . . . | Capt. J. F. Turner. |
| 33 $\frac{1}{4}$ | 9 | 14 $\frac{1}{2}$ | Salt-Range . . . | Capt. R. Milne. |
| 33 | 9 | 10 | S. Waziristan . . . | Capt. A. G. Shea. |
| 32 $\frac{1}{2}$ | 9 $\frac{1}{2}$ | 11 | ? | E. A. Fielden. |
| 32 $\frac{3}{8}$ | 9 | 12 $\frac{1}{2}$ | Near Rawal Pindi . . . | Capt. E. de Labillière. |
| 32 $\frac{3}{8}$ | 7 $\frac{3}{4}$ | 12 | Punjab . . . | G. Blois Johnson. |
| 32 $\frac{1}{4}$ | 10 | 11 $\frac{1}{2}$ | ? | British Museum (Hume Collection). |
| 31 $\frac{1}{4}$ | 9 | 16 $\frac{1}{2}$ | Near Daghestan . . . | R. Graham. |
| 31 $\frac{1}{2}$ | 9 $\frac{1}{2}$ | 16 $\frac{3}{4}$ | Salt-Range . . . | Major H. W. Codrington. |
| 31 $\frac{1}{2}$ | 12 | 10 $\frac{1}{2}$ | ? | Major J. Manners Smith. |
| 31 | 9 | 17 $\frac{1}{4}$ | Jhelam . . . | Capt. W. F. Brayne. |
| 31 | 9 $\frac{3}{4}$ | 14 $\frac{1}{2}$ | Do. . . | Lieut.-Col. R. H. Rattray. |

All the following specimens belong to *O. v. blanfordi* :—

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|------------------|------------------|----------------------------|-----------------------------------|
| 37 $\frac{1}{2}$ | 10 $\frac{1}{4}$ | 11 | Haji Khan, Kelat, 3000 ft. | A. O. Hume. |
| 36 $\frac{1}{4}$ | 9 $\frac{1}{2}$ | 14 | Near Quetta . . . | F. Beaty. |
| 34 $\frac{1}{2}$ | 8 $\frac{1}{4}$ | 16 | Sind . . . | L. Napier. |
| 31 $\frac{1}{2}$ | 11 $\frac{1}{2}$ | 23 $\frac{1}{2}$ | Do. . . | His Majesty the King. |
| 31 $\frac{3}{4}$ | 9 $\frac{3}{4}$ | 13 $\frac{3}{4}$ | Do. . . | British Museum (Hume Collection). |

D.—KOPET DAGH URIAL (*O. vignei* arkal).

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|------------------|------------------|--------------------------|------------------------------|
| 45 $\frac{1}{4}$ | 11 | 16 $\frac{3}{4}$ | N. Persia . . . | Capt. C. T. Daukes. |
| 39 $\frac{1}{2}$ | 12 $\frac{1}{4}$ | 14 $\frac{1}{4}$ | Russian Turkestan . . . | Prince E. Demidoff. |
| 38 $\frac{1}{4}$ | 12 | 14 $\frac{1}{4}$ | N. Persia . . . | Capt. C. T. Daukes. |
| 38 | 11 $\frac{1}{4}$ | 11 $\frac{1}{4}$ | Persia . . . | Lord Osborne Beauclerk. |
| 38 | 10 $\frac{1}{2}$ | 13 | Do. . . | Major P. M. Sykes. |
| 37 $\frac{3}{4}$ | 12 | 17 | Elburz Mountains, Persia | Major R. L. Kennion. |
| 37 | 11 | 10 $\frac{1}{2}$ | North Persia . . . | A. Bayley-Worthington. |
| 36 $\frac{1}{4}$ | 10 | 17 $\frac{1}{2}$ | Persia . . . | Capt. J. W. Watson. |
| 36 | 10 $\frac{1}{4}$ | 15 | Do. . . | Hon. Walter Rothschild. |
| 34 $\frac{1}{2}$ | 11 | 12 | Russian Turkestan . . . | St. George Littledale. |
| 33 $\frac{1}{2}$ | 11 | 8 $\frac{3}{4}$ | Do. . . | The late Prince P. Demidoff. |

— Owner's measurements.

The RED or GMELIN'S SHEEP (*Ovis orientalis*).

This wild sheep differs from all the preceding species by the absence of horns in the females; the horns of the males being not unlike those of the urial, but curving backwards, so that their points are situated behind the neck instead of beneath the eyes; the right horn forming a left spiral. General colour of upper-parts some shade of yellow or foxy red; the under-parts and lower portions of the legs white. A smaller throat-fringe than in the urial, which is apparently black. Height at shoulder typically about 2 feet 9 inches.

Distribution.—Persia, Asia Minor, and Cyprus.

A.—PERSIAN RACE (*O. orientalis typica*).

A sheep from Luristan has been described by Nasenov (in Russian) as *O. luristanica*.

Distribution.—South flank of the Elburz Mountains of Persia.

| Length on front curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|---------------------------|---------------------|-------------|------------------|------------------|
| 27½ | 10 | 14 | Elburz Range . . | Hon. W. Erskine. |

B.—ARMENIAN RACE (*O. orientalis gmelini*).

Distribution.—The mountains of Armenia and other parts of Asia Minor. Heads from the Cilician Taurus approach the Cyprian type and may be distinct.

| Length on outside curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|-----------------------------|---------------------|-------------|----------------------|--------------------------------------|
| 40½ | 10½ | 5½ | ? | British Museum (W. Burchart Barker). |
| 36½ | 10¾ | 5¾ | ? | British Museum. |
| 30½ | 9 | 17½ | Cilician Taurus . . | P. H. Thomas. |
| 29¾ | 9¾ | 9½ | Axylon . . . | E. N. Buxton. |
| 27¾ | 9½ | 21 | W. Asia Minor . . | T. Bowen Rees. |
| 26½ | 9¼ | 14 | Asia Minor . . | Lieut.-Col. C. M. Dobell. |
| 26¼ | 9⅞ | 12¾ | Do. . . | Capt. F. Blacker. |
| 26½ | 8½ | 12½ | Cilician Taurus . . | C. G. Danford. |
| 24¾ | 9¾ | 16 | Asia Minor . . | H. O. Whittall. |
| 24½ | 9¼ | 11½ | Persian Frontier . . | Prince E. Demidoff. |
| 24½ | 9 | 16¾ | W. Asia Minor . . | C. G. R. Lee. |
| 24 | 9⅞ | 17 | Asia Minor . . | Col. J. Biddulph. |
| 24 | 9½ | 18¾ | Do. . . | W. N. Williamson. |
| 23¾ | 9½ | 13½ | Persian Frontier . . | Prince E. Demidoff. |
| 23 | 9⅞ | 14½ | Asia Minor . . | Capt. Pitt Taylor. |



Head of Cyprian Red Sheep. From Biddulph, *Proc. Zool. Soc.* 1884.

C.—CYPRIAN RACE (*O. orientalis ophion*).

A small race distinguished by certain differences in coloration, and the complete rounding-off of the front outer angle of the horns of the rams. This is the smallest of the wild sheep, standing only about 28 inches at the shoulder. The horns closely resemble those of the Armenian race in general characters, but are less massive, and curve gradually from the base, instead of diverging nearly straight outwards, as is generally the case in the latter. Weight about 70 lbs.

Distribution.—Troödos Mountains of Cyprus.

| Length on front curve. | Circumference. | Tip to Tip. | Owner. |
|------------------------|----------------|-----------------|--|
| 27 | $7\frac{1}{2}$ | $8\frac{3}{4}$ | Hon. Walter Rothschild. |
| $25\frac{5}{8}$ | $7\frac{5}{8}$ | $7\frac{1}{2}$ | J. A. Bucknill. |
| 25 | 8 | $15\frac{3}{4}$ | H. Williamson. |
| $23\frac{1}{2}$ | $8\frac{1}{8}$ | $12\frac{1}{4}$ | Col. J. Biddulph. |
| 23 | 7 | $5\frac{1}{4}$ | British Museum. |
| $22\frac{7}{8}$ | $7\frac{1}{4}$ | 6 | British Museum (Gen. Sir R. Biddulph). |
| $22\frac{1}{4}$ | 8 | $12\frac{3}{4}$ | Sir Victor Brooke's Collection. |
| $-17\frac{1}{2}$ | 8 | $1\frac{1}{2}$ | Dublin Museum. |
| 16 | $7\frac{1}{4}$ | $16\frac{1}{2}$ | Cambridge Museum. |

— Owner's measurements.



Head of Mouflon.

From a specimen in the British Museum, shot by Mr. F. G. Barclay.

The MOUFLON (*Ovis musimon*).

The large light-coloured saddle on the otherwise dark summer-coat of the rams and the form of the horns are so distinctive of the species that nothing in the way of description need be attempted in this place. The horns of rams normally curve forwards so as to have their tips below the eyes, and are comparatively massive, with the wrinkles of a type somewhat different from that obtaining in the Armenian sheep. Two races appear recognisable, in one of which the ewes are hornless, while in the other they have short horns. Height at shoulder about 27 inches.

Distribution.—At the present day the islands of Sardinia and Corsica.

Probably the race with hornless ewes is restricted to one of these islands.

| Length on front curve. | Circumference. | Tip to Tip. | Locality. | Owner. |
|------------------------|----------------|-------------|----------------|------------------|
| 38½ | 8 | 11½ | Sardinia . . . | Duke of Bedford. |
| 34½ | 8¾ | 16¾ | Do. . . . | W. Moncreiffe. |
| 33½ | 9 | 9 | Do. . . . | M. Egerton. |

| Length on front curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|---------------------------|---------------------|------------------|----------------|--------------------------------------|
| 32 $\frac{1}{4}$ | 9 | 9 | Sardinia . . . | C. Sloane Stanley. |
| 32 | 8 $\frac{3}{4}$ | 14 $\frac{1}{2}$ | Do. . . . | American National Collection. |
| 31 | 8 $\frac{1}{4}$ | 10 | Do. . . . | C. G. R. Lee. |
| 30 $\frac{1}{4}$ | 8 $\frac{3}{8}$ | 14 | Do. . . . | Rhys Williams. |
| 30 $\frac{1}{4}$ | 8 $\frac{1}{4}$ | 10 | Do. . . . | Major B. H. Piercey. |
| 29 $\frac{3}{4}$ | 8 | 12 $\frac{1}{2}$ | Do. . . . | C. Sloane Stanley. |
| 29 $\frac{3}{4}$ | 8 | ... | Do. . . . | J. D. Cobbold. |
| 29 $\frac{5}{8}$ | 8 $\frac{3}{4}$ | 11 | Do. . . . | Hon. R. A. Ward. |
| 28 $\frac{7}{8}$ | 8 $\frac{1}{8}$ | 21 | Do. . . . | E. N. Buxton. |
| 28 $\frac{3}{4}$ | 8 $\frac{1}{8}$ | 8 $\frac{3}{8}$ | Do. . . . | Dr. Albert von Stephani. |
| 28 $\frac{3}{4}$ | 9 | 10 | Do. . . . | F. G. Barclay. |
| 28 $\frac{1}{2}$ | 8 $\frac{3}{8}$ | 9 $\frac{1}{2}$ | Do. . . . | Sir Edmund G. Loder, Bart. |
| 28 $\frac{1}{4}$ | 9 $\frac{1}{8}$ | 9 $\frac{1}{8}$ | Do. . . . | Edinburgh Museum. |
| 27 $\frac{3}{8}$ | 8 $\frac{3}{4}$ | 5 $\frac{1}{4}$ | Do. . . . | W. E. Pease. |
| 27 $\frac{3}{8}$ | 8 $\frac{3}{4}$ | 9 | Do. . . . | Prince E. Demidoff. |
| 27 $\frac{1}{2}$ | 8 $\frac{3}{4}$ | 6 $\frac{1}{4}$ | Do. . . . | Commander J. E. Cameron, R.N. |
| -27 $\frac{1}{2}$ | 10 $\frac{1}{4}$ | 18 $\frac{1}{2}$ | Do. . . . | J. H. Thomas. |
| 27 $\frac{3}{8}$ | 8 $\frac{1}{4}$ | 6 $\frac{1}{4}$ | Do. . . . | Lieut. E. S. Fleetwood Nash, R.N. |
| 27 | 8 $\frac{1}{2}$ | 10 | Do. . . . | British Museum. |
| 26 | 10 $\frac{3}{8}$ | 10 $\frac{1}{2}$ | Corsica . . . | Lieut.-Col. J. Marriott. |

- Owner's measurements.

DOMESTICATED SHEEP (*Ovis aries*).

The history and ancestry of the various breeds of domesticated sheep are lost in the mists of antiquity, and naturalists are unable to point with certainty to the wild stock from which any or all of them are derived. This is the more to be regretted, seeing that the Swedish breed is the type of the genus *Ovis*. Most domesticated breeds differ from wild sheep by the woolly nature of their coat; but since hairy tame sheep are met with in Africa and elsewhere, this point of difference is of comparatively little importance. More weight has been attached to the length of the tail, which may be longer than in the arui; but in some of the more primitive breeds like that of Soa, and also in the Indian Hunia sheep, this appendage is comparatively short, and its length in other breeds is probably due to a kind of degeneration. If this be really the case, the ancestry may be looked for among the mouflons or urial or some allied extinct form, since the horns of most breeds approximate to the mouflon-type. In many breeds, Dorsetshire, for example, the females are horned; and four, or even five, horns occur in the males of certain breeds. Some eastern sheep, like the Wallachian, have departed from the mouflon-type by the development of upright corkscrew-horns comparable with those of the markhor, but intermediate forms occur in Hungary.

| Length on outside curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|-----------------------------|---------------------|-------------|---------------------|--|
| 45½ | 9 | 15 | Scotland . . . | J. A. H. Drought. |
| 39½ | 8¾ | 21 | ? | H. E. Surtees. |
| 37 | 8½ | 20 | Loch Awe, N.B. . . | H. Murray. |
| 37 | 9½ | 14 | Scotland . . . | Sir Edmund G. Loder, Bart. |
| 35½ | 8 | 16¾ | ? | Sir Victor Brooke's Collection. |
| 35½ | 8½ | 24 | Dorset . . . | Hon. Walter Rothschild. |
| 33 | 11 | 22½ | Yarkand . . . | British Museum (Hume Collec- tion). |
| 22½ | 9½ | 20½ | Do. . . | British Museum (Hume Collec- tion). |
| 18 | 8¾ | 16½ | Fezzan . . . | British Museum. |
| 10½ | 6 | 9 | Faroe Islands . . . | R. J. Cuninghame. |

- Owner's measurements.

Many-horned Breeds.

| Length on curves. | Circumferences. | Tip to Tip. | Number of Horns. | Owner. |
|-------------------|-----------------|-------------|------------------|-----------------------------------|
| 23 ... 20½ | 6½ ... 4½ | 29 | Six | J. G. Millais. |
| 21½ ... 17½ | 7½ ... 5 | 35 | Four | Capt. H. H. Banner. |
| 20½ ... 16 | 6 ... 4½ | 15½ | Do. | The late Sir H. B. Meux, Bart. |
| 19½ ... 14 | 6½ ... 4½ | 21 ... 16 | Do. | P. C. Millbank. |
| 19½ ... 14½ | 8 ... 5½ | 27 ... 9½ | Do. | British Museum. |
| 19½ ... 19 | 7 ... 4½ | 9½ ... 22 | Do. | } R. J. Cuninghame. |
| 19 ... 14 | 7½ ... 5½ | 24 ... 5½ | ... | |
| 17½ ... 14½ | 7½ ... 4½ | 4½ ... 6½ | Four | British Museum (Hume Collection). |
| 17 ... 11½ | 6½ ... 5 | 6 ... 8½ | Do. | British Museum. |

The following belong to the Wallachian breed :—

| Length on the curves. | Length in a straight line. | Girth. | Tip to Tip. | Owner. |
|-----------------------|----------------------------|--------|-------------|---------------------------|
| 34½ | 24½ | 8 | 49½ | British Museum. |
| 33 | 17½ | 7½ | 19½ | H.R.H. the Duc d'Orléans. |
| 32 | 24 | 7½ | 38 | Do. |
| 29½ | 23½ | 8 | 42½ | British Museum. |
| 28 | 19½ | 7½ | 38½ | Hon. Walter Rothschild. |
| 27½ | 10½ | 4½ | 17½ | British Museum. |



Horns of African Buffalo from the Limpopo (Mr. F. H. Barber's specimen).

The AFRICAN BUFFALO (*Bos* [*Bubalus*] *caffer*).

Gdmus, Sudani.

Mbogo and *Nyati*, Swahili.

Gädärs, Galla.

Nadi, in Barotsi and Ngami.

Inyati, Swazi and Zulu.

Nari, Basuto.

Mboa and *Nyati*, Chilala and Chibisa.

Beva, Hausa.

All African buffaloes may be regarded as referable to a single species, of which the extreme forms are represented by the great black Capé buffalo and the small red buffalo of the Congo; *B. c. cottoni* of the Semliki Forest, in which only adult bulls are black, being one of the intermediate types. The number of races that have been named is so large that they cannot be quoted here.

A.—SOUTHERN RACES (*B. caffer typicus*, etc.).

Among the distinctive features of the typical race may be noted the enormous helmet-like mass formed by the closely approximated bases of the horns in old bulls, the backward inclination and comparatively slight angulation of the horns themselves, the shortness of the face, and the great width and size of the heavily fringed and flapping ears. In colour, both the skin and the sparse hairs with which it is clothed are for the most part jetty black; the hairs themselves being directed uniformly backwards from the nape to the rump. Height at shoulder about 5 feet.

Distribution.—Southern and Eastern Africa. Except on the Zambesi, Chobi, and some neighbouring rivers, buffaloes have now become very scarce in South Africa; but between Umtali and the east coast at Beira, and also from the latter station to the mouth of the Zambesi, they are to be met with in vast herds, and a few

years ago existed in countless numbers. Here they are much protected by the unhealthy nature of the country, which is deadly to Europeans, except between the end of May and November. Except a few protected herds in the Addo bush, the Knysna and Zitzikamma forests, and thickets of the Fish and Sunday rivers, the species has long since been exterminated in the Cape. The Ankoli buffalo has been described as *B. c. radcliffei*, and is characterised by the flattened and less rugged horns; while the name *B. c. neumanni* has been given to the buffalo of northern Uganda. The Kivu *B. c. mathewsi* of the Albert Edward Nyanza district is a smaller horned animal, with a white tail-tip, related to the Sudan race.



Ankoli Buffalo; the record specimen. Shot by F. A. Knowles in Uganda.

| Greatest width. | | Tip to | Width of palm measured on face of horn. | Locality. | Owner. |
|-----------------|---------|--------|---|-------------------|---|
| Outside. | Inside. | | | | |
| 52½ | 48¾ | 47 | 11¾ | Uganda . . . | His Majesty the King. (See illustration.) |
| 51 | 47 | 40 | 11 | Do. . . . | Major H. W. A. Christie. |
| 51 | 47 | 39 | 14¼ | East Africa . . . | H. B. Kittermaster. |
| 50¾ | 46¼ | 43¼ | 10 | Do. . . . | G. N. Crisford. |
| 50 | 45½ | 37 | 11½ | Do. . . . | Col. Max. C. Fleischmann. |
| 49¾ | 47 | 45¼ | 11 | Do. . . . | H. A. Penton. |
| 49¾ | 44½ | 32½ | 10¾ | Do. . . . | Major H. W. Stevens. |
| 49¾ | 47½ | 48½ | 10½ | Do. . . . | R. Holmes. |
| 49 | 45¾ | 46¼ | 9¼ | Do. . . . | R. G. C. Napier. |

- Owner's measurements.

| Greatest width. | | Tip to Tip. | Width of palm measured on face of horn. | Locality. | Owner. |
|-----------------|---------|----------------|--|-------------------------|--|
| Outside. | Inside. | | | | |
| 40 | 44½ | 40½ | 11¼ | Limpopo . . . | Sir Richard Glyn, Bart. |
| 48½ | 43 | 32 | 10½ | East Africa . . . | E. C. Gepp. |
| 48½ | 44 | 35½ | 9½ | Chiromo, B.C.A. . . | Hon. Walter Rothschild. |
| 48½ | 43 | 30½ | 11½ | Sabi River . . . | American National Collection. (See illustration.) |
| 48 | 43 | 36 | 12 | East Africa . . . | E. B. Horne. |
| 48 | ... | 44½ | 11½ | Do. . . | R. O. Roberts. |
| 47½ | 42½ | 31½ | 11½ | Do. . . | S. S. Bagge. |
| 47½ | 43½ | 42 | 9½ | Do. . . | F. Santos Saurez. |
| 47½ | 42 | 37½ | 11½ | Ngamiland . . . | Mervyn G. Williams. |
| 47½ | 42½ | 42 | 10 | East Africa . . . | H. A. Case. |
| 47 | 40½ | ... | 12½ | Do. . . | F. J. Jackson. |
| 47 | 42½ | 38 | 10½ | Do. . . | Duke of Alba. |
| 47 | ... | 31 | 12 | Zitzi Forest, S. Africa | Capt. E. H. Studdy. |
| 46½ | 41½ | 35 | 7½ | East Africa . . . | Col. G. Gimlette. |
| 46½ | 44½ | 37½ | 6½ | Pungwe . . . | C. M. Swire. |
| 46½ | 42 | 27½ | 8½ | N.E. Rhodesia . . . | W. F. Grimes. |
| 46½ | 42½ | 31½ | 10½ | East Africa . . . | Marquis de la Scala. |
| 46½ | 41½ | 33½ | 8½ | Do. . . | Hon. Mrs. Blyth. |
| 46½ | 42½ | 41½ | 10 | Do. . . | J. N. Dracopoli. |
| 46½ | 40½ | 39 | 12 | N.E. Rhodesia . . . | O. Letcher. |
| 46½ | 43 | 42½ | 10½ | East Africa . . . | Baron M. de Rothschild. |
| 46 | 40½ | 36 | 10 | Do. . . | Lord Hindlip. |
| 45½ | 41 | 27½ | 8 | Pungwe . . . | Abe Bailey. |
| 45½ | 41½ | 37½ | ... | South Africa . . . | British Museum. |
| 45½ | 40½ | 31½ | 11 | East Africa . . . | Capt. F. W. Barrett. |
| 45½ | 41½ | 32½ | 10½ | Do. . . | H. S. L. Scott. |
| 45½ | 40 | 27½ | 11 | Do. . . | Capt. D. H. Macdonell. |
| 45½ | 41 | 34½ | 10 | Nyasaland . . . | Capt. R. Meinertzhagen. |
| 45½ | 40 | 29½ | 9 | East Africa . . . | Capt. T. H. Rivers Bulkeley. |
| 45½ | 42½ | 43½ | 9½ | Do. . . | H. Sampson. |
| 45½ | 41½ | 37½ | 10 | Do. . . | Major S. Belfield. |
| 45½ | 41 | 30½ | 9½ | Do. . . | M. Seth Smith. |
| 45½ | 40½ | 32½ | 9 | Tana Valley . . . | Major H. De Prée. |
| 45 | 39½ | 33 | 10 | East Africa . . . | G. Wynne Finch. |
| 45 | ... | 44 | 10 | Do. . . | H. S. Keating. |
| 45 | 41 | 32 | 9½ | N.W. Rhodesia . . . | Major Frank Lee. |
| 44½ | 39½ | 27½ | 11½ | East Africa . . . | Sir Robert Harvey, Bart. |
| 44½ | 41½ | 39½ | 11½ | N.W. Rhodesia . . . | G. de P. Colville. |
| 44½ | 39½ | 29 | 12 | Pungwe . . . | F. S. Staples. |
| 44½ | 38½ | 29 | 9½ | East Africa . . . | H.R.H. the Duke of Connaught. |
| 44½ | 39½ | 29 | 15 | Chobi Valley . . . | F. C. Selous. |
| 44½ | 43 | 42 | 10 | East Africa . . . | H. G. Barclay. |

- Owner's measurements.

| Greatest width. | | Tip to Tip. | Width of palm measured on face of horn. | Locality. | Owner. |
|--------------------|------------------|------------------|--|---------------|------------------------------|
| Outside. | Inside. | | | | |
| 44 $\frac{1}{2}$ | . | 37 $\frac{1}{2}$ | 12 | East Africa | F. Charrington. |
| 44 $\frac{1}{2}$ | 40 | 39 $\frac{1}{4}$ | 11 | Do. | Dr. A. E. Herz. |
| 44 $\frac{1}{4}$ | 39 | 31 $\frac{1}{4}$ | 10 | South Africa | J. B. Taylor. |
| 44 $\frac{1}{4}$ | 41 | 35 $\frac{1}{4}$ | 11 $\frac{3}{4}$ | East Africa | Capt. J. F. S. Gordon. |
| 44 | 41 | 41 | 11 $\frac{1}{2}$ | Do. | Capt. M. A. Black. |
| 44 | 39 $\frac{1}{4}$ | 36 $\frac{1}{2}$ | 9 $\frac{1}{2}$ | Do. | Col. J. E. Gough. |
| 44 | 39 | 29 $\frac{1}{2}$ | 9 $\frac{1}{2}$ | Do. | N. A. Kenyon Slaney. |
| 44 | 39 $\frac{1}{4}$ | 34 $\frac{1}{4}$ | 10 $\frac{1}{2}$ | Do. | W. Neilson. |
| 44 | 39 | 27 $\frac{3}{4}$ | 11 | N.W. Rhodesia | H. E. Hambro. |
| 43 $\frac{3}{4}$ | 40 $\frac{1}{4}$ | 35 $\frac{1}{4}$ | 8 | East Africa | R. de la Huerta. |
| 43 $\frac{5}{8}$ | 37 $\frac{3}{4}$ | 20 $\frac{1}{2}$ | 12 $\frac{1}{4}$ | Do. | Hon. Walter Rothschild. |
| 43 $\frac{1}{2}$ | 38 $\frac{3}{4}$ | 30 | 10 $\frac{3}{4}$ | Do. | N. C. Cockburn. |
| ♀ 43 $\frac{1}{2}$ | 40 $\frac{1}{2}$ | 20 | 6 $\frac{1}{4}$ | Do. | |
| 43 $\frac{1}{2}$ | 40 | 38 $\frac{1}{2}$ | 10 $\frac{1}{4}$ | N.W. Rhodesia | R. Campbell Heathcote. |
| 43 $\frac{1}{2}$ | 41 | 41 | 10 | East Africa | A. E. Butter. |
| 43 $\frac{1}{2}$ | 38 $\frac{1}{2}$ | 25 $\frac{1}{2}$ | 9 | Pungwe | H. R. Holden. |
| 43 $\frac{3}{8}$ | 39 | 34 | 12 $\frac{1}{4}$ | East Africa | R. J. Cuninghame. |
| 43 $\frac{1}{4}$ | 38 $\frac{1}{2}$ | 29 | 10 | Do. | W. N. McMillan. |
| 43 $\frac{1}{4}$ | 37 $\frac{1}{4}$ | 25 | 9 $\frac{3}{4}$ | Do. | F. J. Watson Taylor. |
| 43 $\frac{1}{4}$ | 38 $\frac{1}{4}$ | 24 $\frac{1}{2}$ | 13 $\frac{1}{4}$ | South Africa | Sir John Willoughby, Bart. |
| 43 | 38 $\frac{1}{2}$ | 36 | 11 | N.W. Rhodesia | Col. C. Harding. |
| 43 | 37 $\frac{5}{8}$ | 29 $\frac{3}{4}$ | 14 | South Africa | C. D. Rudd. |
| 43 | 37 $\frac{1}{2}$ | 26 $\frac{3}{4}$ | 10 | Do. | W. A. Simpson Hinchliffe. |
| 43 | 38 $\frac{1}{4}$ | 29 $\frac{1}{4}$ | 9 $\frac{1}{2}$ | East Africa | A. E. F. Fawcus. |
| 43 | 38 | 30 $\frac{1}{2}$ | 11 | Lake Ngami | Major J. P. Grenfell. |
| 42 $\frac{3}{4}$ | 38 $\frac{1}{4}$ | 25 $\frac{1}{4}$ | 10 | East Africa | Capt. L. H. Hickson. |
| 42 $\frac{3}{4}$ | 38 $\frac{1}{4}$ | 32 | 11 $\frac{1}{2}$ | Do. | J. M. Preston Whyte. |
| 42 $\frac{3}{4}$ | 38 | 33 $\frac{3}{8}$ | 9 $\frac{1}{4}$ | Do. | E. J. L. Berkeley. |
| 42 $\frac{3}{4}$ | 37 $\frac{1}{4}$ | 25 $\frac{3}{4}$ | 10 $\frac{1}{4}$ | N.E. Rhodesia | J. Yule. |
| 42 $\frac{1}{2}$ | 39 $\frac{1}{2}$ | 40 $\frac{1}{2}$ | 11 $\frac{1}{4}$ | East Africa | B. Eastwood. |
| 42 $\frac{1}{4}$ | 37 $\frac{1}{4}$ | 26 $\frac{1}{4}$ | 10 $\frac{1}{2}$ | Do. | G. F. Phillips. |
| 42 | 37 $\frac{3}{8}$ | 20 $\frac{1}{4}$ | 11 | Pungwe | Capt. F. H. Lehmann. |
| 42 | 37 | 30 $\frac{1}{4}$ | 10 $\frac{1}{4}$ | Barotsiland | E. D. Scott. |
| 42 | 37 $\frac{1}{4}$ | 20 $\frac{1}{2}$ | 11 | East Africa | Capt. H. C. S. Ashton. |
| 42 | 37 $\frac{3}{4}$ | 35 $\frac{1}{2}$ | 10 | Do. | Lieut.-Col. J. W. Yardley. |
| 42 | 36 $\frac{1}{4}$ | 22 $\frac{1}{4}$ | 9 | Do. | Capt. H. L. Archer-Houblon. |
| 42 | 37 | 31 | 11 | Do. | Viscount Bury. |
| 42 | 36 $\frac{1}{2}$ | 18 | 9 $\frac{1}{2}$ | Do. | Capt. L. W. Sadlier-Jackson. |
| ♀ 40 | 35 $\frac{1}{4}$ | 20 $\frac{1}{2}$ | 7 | South Africa | F. C. Selous. |



Skull and Horns of Sudani Buffalo.

B.—NORTHERN RACES (*B. caffer æquinoctialis*, etc.).

The Sudani race is a smaller animal than the Cape buffalo (height at shoulder about 4 feet), with the general colour blackish or tawny brown, tinged locally with rufous, and tending to greyish on the legs. Horns smaller, much more flattened at the bases, where they are more widely separated, and in some, although not all, cases retreating less markedly behind the plane of the eyes. The Sudani race was originally described on the evidence of a skull from East Central Africa, but also occurs on the White Nile. The name *B. c. asracensis* has been applied to the buffalo of the Bahr-el-Azrek, a tributary of the Blue Nile, on the southern frontier of Abyssinia. Its horns are described as being more like those of the Cape race.

| Greatest width. Outside. | Inside. | Tip to Tip. | Width of palm. | Locality. | Owner. |
|-----------------------------|---------|----------------|-------------------|------------|------------------------------------|
| 44 | 42½ | 43 | 8½ | White Nile | P. Niedieck. |
| 41½ | 37½ | 34¾ | 8½ | Mongalla | E. M. Sinauer. |
| 40 | 39 | 39 | 10 | White Nile | Lieut.-Col. J. W. Yardley. |
| 40 | 37½ | 38¾ | 8¼ | Kordofan | Capt. C. C. Maud. |
| 40 | 37 | 32 | 11½ | Abyssinia | E. Lort-Phillips. |
| 39½ | 35½ | 27½ | 9 | Sudan | Capt. F. L. Livingstone-Learmonth. |
| 39½ | 35½ | 34 | 8½ | White Nile | Capt. A. H. Vivian. |
| 39 | 36 | 33¾ | 10 | Do. | W. F. Wailes-Fairbairn. |

| Greatest width. Outside. | Greatest width. Inside. | Tip to Tip. | Width of palm. | Locality. | Owner. |
|-----------------------------|----------------------------|------------------|-------------------|----------------|----------------------------------|
| 38 $\frac{1}{2}$ | 33 | 25 $\frac{1}{4}$ | 12 | White Nile | Douglas M'Douall. |
| -38 $\frac{3}{4}$ | 35 $\frac{1}{2}$ | 35 $\frac{1}{8}$ | 9 $\frac{1}{4}$ | Do. | Sir W. Garstin. |
| 38 $\frac{1}{2}$ | 35 $\frac{1}{4}$ | 30 $\frac{1}{4}$ | 8 $\frac{1}{2}$ | Do. | H. R. H. the Duke of Connaught. |
| 38 $\frac{1}{2}$ | 34 $\frac{1}{2}$ | 32 $\frac{3}{4}$ | 7 | Do. | Capt. P. M. Dove. |
| 38 $\frac{1}{4}$ | 34 $\frac{7}{8}$ | 32 $\frac{1}{4}$ | 8 $\frac{3}{4}$ | Do. | R. M'D. Hawker. |
| 38 | 34 | 33 | ... | Do. | F. W. Greswolde-Williams. |
| 38 | 34 $\frac{1}{2}$ | 28 $\frac{3}{4}$ | 7 $\frac{3}{4}$ | Do. | G. H. Cheetham. |
| 38 | 34 | 29 | 8 | Do. | Capt. H. D. Pearson. |
| 37 $\frac{1}{4}$ | 34 $\frac{1}{8}$ | 33 $\frac{1}{4}$ | 8 $\frac{5}{8}$ | Lado | Major P. H. G. Powell-Cotton. |
| 37 $\frac{1}{4}$ | 33 | 28 $\frac{1}{4}$ | 9 | White Nile | Capt. W. E. Reymes Cole. |
| 37 | 34 $\frac{1}{2}$ | 35 $\frac{1}{4}$ | 10 $\frac{1}{2}$ | Bahr-el-Ghazal | G. Blaine. |
| 37 | 34 $\frac{1}{2}$ | 35 $\frac{1}{4}$ | 9 | White Nile | Major J. L. J. Conry. |
| 36 $\frac{1}{2}$ | 32 $\frac{1}{4}$ | 26 $\frac{1}{2}$ | 8 | Do. | P. M. Tottenham. |
| 36 $\frac{1}{2}$ | 33 | 30 $\frac{1}{2}$ | 9 $\frac{1}{2}$ | Sudan | Col. A. Colville. |
| 36 $\frac{1}{2}$ | 31 $\frac{3}{4}$ | 29 | 9 | Do. | Capt. the Hon. M. P. Macnaghten. |
| 36 $\frac{1}{4}$ | 32 $\frac{3}{4}$ | 32 $\frac{1}{2}$ | 7 $\frac{1}{2}$ | Do. | Countess of Sefton. |
| 36 $\frac{1}{4}$ | 32 | 29 $\frac{1}{4}$ | 9 | Do. | C. C. Tower. |
| 36 $\frac{1}{4}$ | 32 | 22 $\frac{3}{4}$ | 8 $\frac{1}{2}$ | White Nile | H. E. Allen. |
| 36 | 32 $\frac{1}{2}$ | 29 | 9 $\frac{1}{2}$ | Do. | J. V. Colby. |
| -36 | 32 $\frac{1}{4}$ | 27 | 8 $\frac{1}{4}$ | Sudan | Prince Henry of Liechtenstein. |
| 36 | 33 $\frac{1}{2}$ | 32 | 9 $\frac{1}{2}$ | | British Museum. |
| 35 $\frac{3}{4}$ | 32 | 30 $\frac{1}{2}$ | 9 | Sudan | R. A. Colvin. |
| 35 $\frac{3}{4}$ | 33 $\frac{1}{2}$ | 35 | 7 $\frac{1}{2}$ | Do. | G. C. Whitaker. |
| 35 $\frac{1}{2}$ | 31 $\frac{3}{4}$ | 28 $\frac{1}{4}$ | 8 $\frac{1}{4}$ | White Nile | E. N. Buxton. |
| 35 $\frac{1}{2}$ | 32 | 28 $\frac{3}{4}$ | 8 | Lado | Major P. H. G. Powell-Cotton. |
| 35 $\frac{1}{2}$ | 32 $\frac{1}{2}$ | 31 $\frac{1}{4}$ | 7 $\frac{3}{4}$ | White Nile | S. H. Whitbread. |
| ♀ 35 $\frac{1}{2}$ | 32 | 25 $\frac{1}{4}$ | 5 | Dinder Valley | C. D. Eyre. |
| 35 $\frac{1}{4}$ | 31 $\frac{3}{4}$ | 29 $\frac{3}{4}$ | 8 $\frac{1}{4}$ | Blue Nile | Capt. N. A. Orr Ewing. |
| 35 $\frac{1}{4}$ | 30 $\frac{3}{4}$ | 21 $\frac{3}{4}$ | 9 $\frac{3}{8}$ | Do. | Capt. H. R. Headlam. |
| 35 | 32 | 31 $\frac{1}{2}$ | 8 $\frac{3}{4}$ | Do. | Norman B. Smith. |
| 34 $\frac{3}{4}$ | 30 $\frac{1}{2}$ | 29 | 8 $\frac{1}{2}$ | Sudan | Douglas M'Douall. |
| 34 $\frac{1}{2}$ | 29 $\frac{1}{2}$ | 23 $\frac{3}{4}$ | 7 $\frac{1}{2}$ | White Nile | C. Liddell. |
| 34 | 31 $\frac{1}{4}$ | 31 $\frac{1}{2}$ | 7 $\frac{3}{4}$ | Do. | Earl of Sefton. |
| 34 | 29 | 21 $\frac{1}{4}$ | 9 $\frac{1}{4}$ | Do. | Capt. P. E. Vaughan. |
| 31 $\frac{3}{8}$ | 26 $\frac{3}{4}$ | 24 $\frac{3}{8}$ | ... | Bogosland | British Museum. |

- Owner's measurements.



Skull and Horns of Congo Dwarf Buffalo.

C.—SHORT-HORNED RACES.

B. caffer brachyceros, *B. c. planiceros*, *B. c. nanus*, etc.

Despite the differences in size, colour, and the form of the horns between the dwarf red buffalo of the Congo (*B. c. nanus*) and its gigantic black cousin of the Cape, such a gradual transition can be traced from the one type to the other, that both are evidently nothing more than local modifications of one variable species. In the dwarf buffalo of the Congo the colour of the hair is red or yellow, the ears are fringed with very long hair, and the horns are much flattened at the base, with long smooth tips directed upwards. This type may be traced, with some modifications, to the Gabun and Gambia; but in the interior of Senegambia it apparently passes into the larger brown buffalo, with more laterally expanded and recurved horns known as *B. c. planiceros*; while the latter approaches the Abyssinian buffalo. In the Kwilu district of the Congo *nanus* is replaced by a darker-coloured race which may be known as *B. c. simpsoni*; the type specimen being a female head in the British Museum. Another type is indicated by the Lake Chad buffalo (*B. c. brachyceros*), first discovered by the early explorers Denham and Clapperton. In height the Congo dwarf buffalo only reaches some 42 inches at the shoulder. Weight, 579 lbs. clean. (Major P. H. G. Powell-Cotton.)

| Length on outside curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|-----------------------------|---------------------|------------------|----------------------|--------------------------------|
| 26 $\frac{1}{2}$ | 19 | 18 | N. Nigeria . . | Capt. J. C. Parker. |
| 26 $\frac{1}{2}$ | 19 $\frac{1}{4}$ | 7 | Do. . . | Capt. H. V. Venables Kyrke. |
| 26 | 18 $\frac{3}{4}$ | 22 $\frac{3}{4}$ | Do. . . | G. C. W. King. |
| 25 $\frac{3}{4}$ | 17 $\frac{1}{4}$ | 17 $\frac{1}{2}$ | S. Nigeria . . | W. D. Downes. |
| 25 $\frac{1}{2}$ | 18 $\frac{3}{4}$ | 15 | N. Nigeria . . | F. Cogan. |
| 25 | 17 $\frac{1}{2}$ | ... | Portuguese Guinea . | M. V. Hay. |
| 24 $\frac{3}{4}$ | 23 $\frac{1}{2}$ | 14 $\frac{1}{4}$ | N. Nigeria . . | Capt. O. M. Harris. |
| 24 $\frac{1}{2}$ | 18 $\frac{1}{2}$ | 15 | Do. . . | J. C. Sciortino. |
| 24 | 15 $\frac{1}{2}$ | 7 | Do. . . | Capt. L. M. Bucknill. |
| 24 | 18 $\frac{3}{4}$ | 13 $\frac{1}{2}$ | Nepoko Valley, Congo | R. de la Huerta. |
| 23 $\frac{1}{2}$ | 23 $\frac{1}{2}$ | 12 | Do. . . | Duke of Peneranda. |
| 23 $\frac{1}{2}$ | 15 | 10 | Gold Coast . . | Major G. S. C. Jenkinson. |
| 23 $\frac{1}{2}$ | 20 | 16 $\frac{1}{4}$ | Do. . . | G. W. Dawes. |
| 23 | 19 | 20 $\frac{1}{2}$ | N. Nigeria . . | R. M. Blackwood. |
| 23 | 16 $\frac{1}{2}$ | 8 $\frac{1}{4}$ | Nigeria . . | Abe Bailey. |
| 22 $\frac{3}{4}$ | 17 | 14 $\frac{3}{4}$ | Sierra Leone . . | Capt. H. A. Carter. |
| 22 $\frac{3}{4}$ | 16 $\frac{1}{2}$ | 12 | Ashanti . . | C. Beddington. |
| 22 $\frac{3}{4}$ | 17 $\frac{3}{4}$ | 20 $\frac{1}{4}$ | N. Nigeria . . | H. S. Berkeley. |
| 22 $\frac{1}{2}$ | 17 | 14 | Gold Coast . . | Capt. T. W. C. Carthew. |
| 22 $\frac{1}{2}$ | 16 $\frac{1}{2}$ | 18 $\frac{1}{4}$ | Nigeria . . | Brig.-Gen. P. S. Wilkinson. |
| 22 | 14 | 15 | Congo . . | Capt. H. M. Stephenson. |
| 21 $\frac{1}{2}$ | 17 $\frac{1}{2}$ | 9 $\frac{1}{2}$ | Near Kumasi . . | Dr. W. H. Langley. |
| 21 $\frac{1}{2}$ | 15 | 8 | Gold Coast . . | Capt. G. H. Hastings. |
| 21 $\frac{1}{8}$ | 12 $\frac{3}{4}$ | 2 $\frac{1}{4}$ | West Africa . . | British Museum. |
| 21 | 15 | 9 $\frac{1}{4}$ | Nigeria . . | A. Ohlsson. |
| 21 | 17 $\frac{1}{2}$ | 16 $\frac{1}{4}$ | Do. . . | Capt. J. F. Loder-Symonds. |
| ♀ 20 $\frac{1}{2}$ | 11 | 6 $\frac{3}{4}$ | Do. . . | W. D. Barker. |
| 20 $\frac{1}{2}$ | 16 $\frac{1}{2}$ | 10 | Do. . . | Major D. F. MacCarthy Morrogh. |
| ♀ 20 $\frac{1}{2}$ | 13 $\frac{1}{4}$ | 14 $\frac{1}{4}$ | Do. . . | R. M. Blackwood. |
| 20 $\frac{1}{2}$ | 15 | 11 | Benue . . | Capt. E. J. Wolseley. |
| 20 $\frac{1}{2}$ | 14 $\frac{1}{2}$ | 6 $\frac{1}{2}$ | N. Nigeria . . | A. B. Harcourt. |
| 20 | 18 | 12 $\frac{1}{2}$ | S. Nigeria . . | W. V. Nugent. |
| 19 $\frac{3}{4}$ | 14 | 13 | Sierra Leone . . | Capt. E. J. Carter. |
| 19 | 10 | ... | Lake Chad . . | Hon. Walter Rothschild. |
| 18 $\frac{3}{4}$ | 11 $\frac{1}{2}$ | 3 $\frac{1}{2}$ | Nigeria . . | W. H. Broun. |

- Owner's measurements.

| Length on outside curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|-----------------------------|---------------------|------------------|---------------------------------|---|
| 18 $\frac{3}{4}$ | 16 | 8 $\frac{1}{2}$ | ? | A. W. Boddy. |
| 18 $\frac{1}{2}$ | 12 | 6 $\frac{3}{4}$ | Gambia . . . | H. C. Goddard. |
| 18 $\frac{1}{2}$ | 17 | 15 | N. Nigeria . . . | Capt. J. B. Cockburn. |
| 18 $\frac{1}{2}$ | 17 | 8 $\frac{1}{2}$ | Do. . . . | J. F. Pett. |
| 18 $\frac{1}{2}$ | 11 $\frac{1}{2}$ | 13 $\frac{3}{4}$ | Senegambia . . . | Hon. Walter Rothschild. |
| 18 $\frac{1}{2}$ | 17 $\frac{1}{4}$ | 4 $\frac{3}{4}$ | Congo | Col. J. J. Harrison. |
| 18 $\frac{1}{4}$ | 10 $\frac{3}{4}$ | 5 $\frac{1}{2}$ | Central Africa . . . | British Museum (Capt. Denham and Col. Clapperton). |
| 18 | 16 $\frac{1}{2}$ | 17 $\frac{1}{2}$ | Victoria Island, Lower Niger | Capt. R. H. Monck-Mason. |
| 18 | 16 $\frac{3}{4}$ | 10 $\frac{1}{2}$ | S. Nigeria . . . | Capt. H. T. G. Moore. |
| 18 | 15 | ... | Ashanti | F. E. Fell. |
| 18 | 15 $\frac{3}{4}$ | 11 $\frac{1}{2}$ | S. Nigeria . . . | J. H. L. Thompson. |
| 18 | 11 $\frac{3}{4}$ | 5 | Gambia | Capt. H. S. Toppin. |
| 17 $\frac{1}{2}$ | 10 | 4 $\frac{1}{2}$ | Do. | British Museum (Sir Edmund G. Loder). |
| 17 $\frac{1}{2}$ | 9 $\frac{3}{4}$ | 4 | Cameruns . . . | |
| ♀ 17 $\frac{1}{2}$ | 13 $\frac{1}{2}$ | 17 $\frac{1}{4}$ | Nigeria | Capt. H. V. Venables Kyrke. |
| 17 $\frac{1}{2}$ | 10 | 4 | Senegambia . . . | Abe Bailey. |
| 17 $\frac{1}{2}$ | 11 | 11 | Likati, Congo . . . | M. Calmeyn. |
| ♀ 17 $\frac{1}{4}$ | 10 | ... | S. Nigeria . . . | Capt. H. T. G. Moore. |
| ♀ 17 | 11 $\frac{1}{2}$ | 3 | N. Nigeria . . . | Capt. O. M. Harris. |
| ♀ 17 | 9 $\frac{3}{4}$ | 7 | Nepoko Valley, Congo | R. de la Huerta. |
| 15 $\frac{1}{2}$ | 14 $\frac{1}{2}$ | 14 | Ituri, Congo . . . | Major P. H. G. Powell-Cotton. |
| ♀ 11 $\frac{1}{2}$ | 9 $\frac{1}{2}$ | ... | Lokoja | British Museum (Col. A. J. Arnold). |

The following specimens from the French Congo may belong to
B. caffer brachyceros :—

Shot by the late Prince P. Demidoff.

| Length. | Girth. | Tip to Tip. |
|--------------------|------------------|------------------|
| 28 | 24 $\frac{3}{4}$ | 13 $\frac{1}{4}$ |
| 26 | 21 $\frac{1}{2}$ | 18 $\frac{1}{2}$ |
| 25 $\frac{1}{2}$ | 25 | 21 $\frac{1}{2}$ |
| ♀ 22 $\frac{1}{2}$ | 16 | 16 $\frac{1}{2}$ |



Head of Indian Buffalo. Shot by the Maharaja of Cooch Behar.

The INDIAN BUFFALO or ARNA (*Bos* [*Bubalus*] *bubalis*).

No one is the least likely to confuse this animal with the African species. Both belong, indeed, to the same group of the genus *Bos*, and have the same rounded upper portion of the head and angulated horns. In the Indian species, however, the head is much longer, the ears are narrower and less heavily haired, and the horns of the male are widely separated on the forehead and totally different in form. Two types of horns may be recognised—one very massive, and curving regularly up from each side of the head in a subcircular manner; the other more slender, directed for the greater part of their length almost straight out from the head, and always with a wider spread. The first is the typical race (*B. bubalis typicus*), while the second, or Assam, race (probably now extinct) is *B. bubalis macroceros*. A third race from Assam has been named *B. b. fulvus*, but it is by no means certain that this is anything more than a tawny-coloured phase of the typical race. Height at shoulder about 6 feet 2 inches; girth behind shoulder, 10 feet 8 inches. In a bull shot by the Maharaja of Cooch Behar the length from the nose to the tip of the tail was 14 feet 2 inches, and to the base of the tail 11 feet; the maximum

girth being 10 feet 8 inches, and the weight of the head, when cut off, 158 lbs.

Distribution.—Typically India, where the range includes the plains of the Bramaputra and Ganges from the eastern end of Assam to Tirhut, and the Terai as far west as Rohilcund, the plains near the coast in Midnapore and Orissa, and also the plains in the Eastern Central Provinces as far south as the Godaveri and Pranhita rivers. Smaller varieties in Ceylon and some of the Malay islands. In a domesticated state, South Europe, Egypt, etc. Native name of male, *arna*; of female, *arni*.

| Length on outside curve. | Circumference. | Tip to Tip. | Widest inside. | Widest outside. | Locality. | Owner. |
|--------------------------|------------------|------------------|------------------|------------------|---------------------|---|
| 77 $\frac{3}{4}$ | 17 $\frac{1}{2}$ | ... | ... | ... | ? | British Museum (Sloane Collection). |
| -71 | 21 $\frac{1}{2}$ | 34 $\frac{3}{4}$ | 60 | ... | Near Dubri, Assam | Measured by A. O. Hume; shot by A. Forbes, C.S.I. |
| ♀ -70 $\frac{1}{2}$ | 18 | ... | 64 | 78 | Do. | The late Sir A. Campbell-Orde. |
| 70 | 18 $\frac{1}{2}$ | 60 | 67 $\frac{3}{4}$ | 72 | Do. | J. H. Whitehouse. |
| -67 $\frac{1}{2}$ | ... | ... | ... | ... | Do. | Major H. Gidney. |
| 65 $\frac{3}{4}$ | 20 $\frac{1}{2}$ | ... | ... | ... | Do. | British Museum (Col. J. Mathie). |
| ♀ -64 $\frac{1}{2}$ | 18 | 42 $\frac{1}{2}$ | 60 | 96 | Do. | J. Campbell of Kilberry. |
| 62 | 17 | 101 | ... | ... | Do. | Hon. Walter Rothschild. |
| ♂ 61 $\frac{1}{2}$ | 15 $\frac{1}{4}$ | 22 $\frac{1}{2}$ | 45 $\frac{1}{2}$ | ... | Cooch Behar . . . | H.H. the Maharaja of Cooch Behar. |
| ♂ 61 $\frac{1}{2}$ | 10 | 22 | 48 | ... | Assam . . . | Hon. Walter Rothschild. |
| 60 | 22 | ... | 64 | 72 | Central Provinces . | Major B. Vincent. |
| 60 | 20 | 40 | 52 | ... | ? | Sir Edmund G. Loder, Bart. |
| ♀ 60 | 13 $\frac{1}{2}$ | 57 $\frac{1}{2}$ | 62 $\frac{3}{4}$ | 67 $\frac{5}{8}$ | Assam . . . | L. P. Haviland. |
| -59 $\frac{1}{2}$ | 15 | ... | 53 | 59 | ? | Sir Savile Crossley, Bart. |
| ♀ -57 $\frac{1}{2}$ | 15 $\frac{3}{4}$ | 95 $\frac{1}{2}$ | ... | 96 $\frac{1}{2}$ | Cooch Behar . . . | H.H. the Maharaja of Cooch Behar. |
| -57 | 18 | ... | ... | ... | Central Provinces . | J. D. Inverarity. |
| 57 | 18 $\frac{1}{2}$ | 41 $\frac{1}{2}$ | 60 | ... | Do. . . | Col. G. D. F. Sullivan. |
| 57 | 15 | 49 | 52 | ... | Assam . . . | A. H. Straker. |
| ♀ -57 | 14 $\frac{1}{2}$ | 53 | 61 | ... | ? | Sir Edmund G. Loder, Bart. |
| 56 $\frac{1}{2}$ | 21 $\frac{1}{2}$ | 40 | 52 $\frac{3}{4}$ | ... | Assam . . . | A. O. Hume. |
| 56 | 18 | 29 $\frac{1}{2}$ | ... | 57 $\frac{1}{2}$ | ? | J. Whitaker. |
| ♀ 56 | 19 $\frac{1}{4}$ | 33 $\frac{3}{4}$ | 50 $\frac{1}{4}$ | ... | Cooch Behar . . . | H.H. the Maharaja of Cooch Behar. |
| 56 | 17 $\frac{1}{2}$ | 62 | 61 $\frac{1}{2}$ | 64 $\frac{1}{2}$ | Bengal . . . | G. Monteath. |

- Owner's measurements.

| Length on outside curve. | Circum- ference. | Tip to Tip. | Widest inside. | Widest outside. | Locality. | Owner. |
|--|---------------------|------------------|-------------------|--------------------|---------------------|---|
| 56 | 18 $\frac{1}{4}$ | 108 | ... | ... | Assam . . . | H.R.H. the Duc d'Orléans. |
| 55 $\frac{1}{2}$ | 18 $\frac{1}{2}$ | 29 | 44 | .. | ? | J. Carr Saunders. |
| ♀ 55 $\frac{1}{4}$ | 14 $\frac{1}{4}$ | 41 | 54 $\frac{1}{2}$ | 58 | Assam . . . | The late T. Briscoe. |
| 55 | 22 | 55 $\frac{1}{2}$ | 62 | 66 | Central Provinces . | L. T. Harris. |
| 54 $\frac{1}{2}$ | 18 $\frac{1}{8}$ | 38 $\frac{1}{4}$ | 48 $\frac{1}{2}$ | ... | ? | British Museum (Hume Collec- tion). |
| ♀ 54 $\frac{1}{2}$ | 12 $\frac{3}{4}$ | 60 $\frac{3}{4}$ | 70 | ... | Assam . . . | A. O. Hume. |
| 54 $\frac{1}{2}$ | 19 | 50 | 59 | 64 | ? | Viscount Powerscourt. |
| 54 | 18 $\frac{1}{2}$ | 34 | 47 $\frac{1}{2}$ | 54 $\frac{3}{4}$ | Cochin China . | H.R.H. the Duc de Mont- pensier. |
| 54 | 23 | 30 | ... | 59 $\frac{1}{2}$ | Burma . . . | Pegu Club, Rangoon. |
| 1 53 $\frac{1}{2}$ (6 ft. 2 $\frac{1}{2}$ ins. at shoulder) | 23 | 30 | 42 $\frac{1}{2}$ | .. | Cooch Behar . . | H.H. the Maharaja of Cooch Behar. |
| 53 $\frac{1}{2}$ | 12 $\frac{1}{8}$ | 31 | ... | ... | Java . . . | Dr. Albert von Stephani. |
| 53 | 19 | 36 $\frac{1}{2}$ | 48 $\frac{3}{4}$ | 56 | ? | Col. H. Lysons. |
| 51 $\frac{3}{4}$ | 13 $\frac{1}{4}$ | 71 $\frac{1}{4}$ | ... | ... | ? | Imperial Museum, Vienna. |
| 51 $\frac{3}{4}$ | 18 $\frac{1}{2}$ | 22 | 38 $\frac{1}{4}$ | .. | Assam . . . | Sir Peter Walker, Bart. |
| 51 $\frac{1}{2}$ | 18 | 38 | 50 | 56 | Central India . . | Hon. J. Best. |
| 51 $\frac{1}{2}$ | 19 | 43 | 52 $\frac{3}{4}$ | 60 $\frac{1}{2}$ | Central Provinces . | A. M ^{rs} B. Woodside. |
| 51 $\frac{3}{4}$ | 19 $\frac{3}{8}$ | 45 $\frac{3}{8}$ | 50 | ... | Do. . . | Major P. H. G. Powell- Cotton. |
| 50 $\frac{3}{4}$ | 22 | 34 $\frac{1}{2}$ | 44 $\frac{1}{2}$ | 50 $\frac{1}{2}$ | Cooch Behar . . | The late Sir Henry D. Tich- borne, Bart. |
| 50 $\frac{3}{4}$ | 18 $\frac{3}{8}$ | 54 $\frac{1}{2}$ | 60 $\frac{1}{4}$ | 65 | Patna . . . | Brig.-Gen. F. H. Whitby. |
| 50 $\frac{3}{4}$ | 19 $\frac{1}{2}$ | 34 $\frac{1}{2}$ | 46 $\frac{3}{4}$ | 54 | Central Provinces . | H. Tyler. |
| 50 $\frac{1}{2}$ | 20 $\frac{1}{2}$ | 36 $\frac{1}{2}$ | 50 | 56 $\frac{3}{4}$ | Cochin China . . | H.R.H. the Duc de Mont- pensier. |
| 50 | 18 $\frac{1}{2}$ | 48 $\frac{1}{2}$ | 60 | .. | Central Provinces . | Major C. F. Pinney. |
| 50 | 13 $\frac{1}{4}$ | 33 | 38 $\frac{1}{2}$ | .. | Assam . . . | Noel Fenwick. |
| 50 | 17 | 31 $\frac{3}{4}$ | 50 | ... | Do. . . | Col. D. M. Lumsden. |
| 50 | 19 $\frac{1}{2}$ | 36 $\frac{1}{2}$ | 40 | 52 $\frac{1}{2}$ | Do. . . | A. Ezra. |
| 48 $\frac{1}{4}$ | 19 $\frac{3}{4}$ | ... | ... | ... | Siam . . . | J. H. Thurston. |

- Owner's measurements.

¹ Measured round outside curves across skull, 9 ft. 11 $\frac{3}{8}$ ins. Another pair, 10 ft. 5 ins. :
circumference of horn at base, 21 inches.

The following specimens are mostly from Ceylon :—

| Length on outside curve. | Circum- ference. | Tip to Tip. | Widest inside. | Widest outside. | Locality. | Owner. |
|--------------------------------|---------------------|----------------|-------------------|--------------------|---------------------------------|--|
| 40 | 15½ | 24 | 35½ | 42 | Ceylon . . | F. T. Wright. |
| ♀ 37½ | 9½ | 42½ | 47 | 50½ | Do. . . | M. J. Alderson. |
| 35 | 13½ | 18 | 30½ | 37½ | Do. . . | Marquis of Stafford. |
| ♀ 35 | 9½ | 31½ | 37½ | ... | Do. . . | R. Wahrmann. |
| 35 | 14½ | 39½ | 42 | 47½ | Do. . . | H. R. H. Prince George of Bavaria. |
| 34½ | 15½ | 25½ | 35 | ... | Do. . . | Earl Cairns. |
| ♀ 33½ | 9 | 31½ | 37 | ... | Do. . . | Do. |
| 33½ | 13 | 32½ | 38 | 43 | Do. . . | Major F. H. N. Pym. |
| 31½ | 16 | 28 | ... | 38½ | Do. . . | Marquis of Camden. |
| 31½ | 15½ | 27 | 34 | 38 | Do. . . | P. Niedieck. |
| 31½ | 16 | ... | 47½ | ... | South Australia (introduced) | H. L. Heber Percy. |
| 29 | 13½ | 28½ | 33½ | 37 | Ceylon . . | K. J. F. Bickersteth. |
| ♀ -28 | 9½ | 18½ | 26 | 31½ | Do. . . | H. M. von Archer. |
| ♀ -27½ | 9½ | 15 | 25 | 29½ | Do. . . | H. R. H. Prince Pedro d'Orléans and Braganza. |

- Owner's measurements.



Indian Buffalo. Shot by the Maharaja of Cooch Behar.



Head of Anoa, from life.

The ANOA (*Bos [Bubalus] depressicornis*).

The smallest wild member of the ox tribe, characterised by its straight, upright horns, and the frequent presence of white spots on the sides of the head or elsewhere. Although so different in the form of the head and horns from the adult Indian buffalo, the anoa is in these respects much more like the young of the latter; and the two are connected to a considerable extent by the tamarau, or Philippine buffalo (*Bos mindorensis*) of the island of Mindoro. As in all the Oriental buffaloes, the hair of the fore-part of the back is directed forwards in the anoa. Height at shoulder about 3 feet 3 inches. There may be two races.

Distribution.—The island of Celebes.

| Length on front curve. | Circum- ference. | Tip to Tip. | Owner. |
|--------------------------------|---------------------|-----------------|-------------------------|
| —15 $\frac{3}{8}$ | 7 $\frac{1}{8}$ | 7 $\frac{1}{2}$ | Paris Museum. |
| ¹ —13 $\frac{1}{2}$ | 9 $\frac{1}{4}$ | 5 | Jesuit College, Manila. |
| 12 $\frac{3}{8}$ | 6 | 6 $\frac{1}{2}$ | British Museum. |

— Owner's measurements.

¹ Measured by the late Rear-Admiral R. A. J. Montgomerie.

RECORDS OF BIG GAME

| Length on front curve. | Circum- ference. | Tip to Tip. | Owner. |
|------------------------------|---------------------|-----------------|---------------------------------|
| 12 $\frac{1}{4}$ | 6 | 5 $\frac{1}{4}$ | G. A. Wright. |
| 10 $\frac{1}{2}$ | 6 $\frac{1}{4}$ | 7 | Carl Hagenbeck. |
| 10 | 6 | 5 $\frac{1}{2}$ | Sir Edmund G. Loder, Bart. |
| 10 | 5 $\frac{7}{8}$ | 5 $\frac{3}{4}$ | Sir Victor Brooke's Collection. |
| 9 $\frac{3}{4}$ | 5 $\frac{5}{8}$ | 7 $\frac{1}{8}$ | Dr. Albert von Stephani. |
| 9 $\frac{1}{2}$ | 8 $\frac{1}{2}$ | 8 $\frac{1}{2}$ | Dublin Museum. |

- Owner's measurements.



Dead European Bison. From Prince Demidoff's *Hunting Trips in the Caucasus*.

The BISON (Bos [Bison] bonasus).

The great elevation of the fore-quarters, the mass of long hair clothing the head, shoulders, and fore part of the body, together with the peculiar form of the head and horns, the latter of which are cylindrical, serve at once to distinguish bison from the other members of the ox tribe. There is also a difference in the number of ribs between the bison and the more typical oxen, the number in the former varying from 14 to 15 pairs. In the European species the mass of hair on the fore-quarters is not so long as in its American cousin, the form of the skull is different, and the hind-quarters do not fall away nearly to the same extent. Some difference may be noted between Caucasian and Lithuanian specimens, which are now referred to separate races. Height at shoulder, 6 feet 1 or 2 inches. In a bull killed by Mr. St. George Littledale, the length from the nose to the root of the tail measured 10 feet 1 inch, the height at the shoulder 5 feet 11 inches, and the approximate girth of the body 8 feet 4 inches.

Distribution.—At the present day restricted to the Caucasus and the forest of Bielowitzka in Lithuania; the herds in the latter district existing in a protected state. The name aurochs, commonly misapplied to the bison, belongs to the extinct wild ox of Europe. The Caucasian race is named *B. b. caucasicus*.

| Length on outside curve. | Circum- ference. | Tip to Tip. | Widest inside. | Locality. | Owner. |
|--------------------------------|---------------------|------------------|-------------------|---------------|--|
| 18 $\frac{1}{4}$ | 12 $\frac{1}{8}$ | 13 $\frac{1}{4}$ | 19 $\frac{1}{4}$ | Lithuania . . | British Museum (H.I.M. the Tzar Alexander). |
| 18.2 | 10.8 | 17.5 | 20.14 | Do. . . | Prince Henry of Liechtenstein. |
| 18 | 12 $\frac{1}{8}$ | 16 | 20 | Caucasus . . | St. George Littledale. |
| 17 $\frac{1}{2}$ | 10 | 18 $\frac{1}{2}$ | ... | Lithuania . . | Major Algernon Heber-Percy. |
| 17.4 | 13.3 | 13.4 | 20.10 | Do. . . | Prince Henry of Liechtenstein. |
| 16 $\frac{3}{4}$ | 12 $\frac{1}{4}$ | 21 $\frac{7}{8}$ | 24 $\frac{1}{4}$ | ? | Sir Edmund G. Loder, Bart. |
| ♀ 16 | 8 $\frac{1}{4}$ | 12 | .. | ? | Royal Scottish Museum. |
| 15 $\frac{3}{4}$ | 12 $\frac{1}{2}$ | 21 $\frac{1}{4}$ | | Lithuania . . | Imperial Museum, Vienna. |
| ♀ 15 $\frac{1}{4}$ | 8 | 6 | . | ? | Major Algernon Heber-Percy. |
| 14 | 14 | 26 $\frac{1}{4}$ | | ? | Royal Scottish Museum. |
| ♀ 13 | 8 $\frac{1}{4}$ | 9 $\frac{3}{4}$ | 14 | Caucasus . . | St. George Littledale. |

- Owner's measurements.



American Bison and Wapiti in the Park at Woburn Abbey.
From a Photograph by the Duchess of Bedford.

The AMERICAN BISON (*Bos* [*Bison*] *bison*).

Some of the points distinguishing this species from the European bison have been mentioned under the head of the latter, but it may be added that in the typical race of the former the horns are shorter, thicker, blunter, and more sharply curved. In the skull of the American animal the sockets of the eyes have a more tubular form. Height at shoulder about 5 feet 9 inches; weight from 15 to 20 cwt.; an adult bull weighed by W. T. Hornaday scaled 2100 lbs.

Distribution.—The greater portion of Western North America, ascending to the Great Slave Lake, and descending to New Mexico and Texas; now nearly exterminated. American writers recognise two races—the prairie-bison (*B. bison typicus*), and the larger wood-bison (*B. bison athabascæ*) of the forest highlands of the North-West.

| Length on outside curve. | Circum- ference. | Tip to Tip. | Widest inside spread. | Locality. | Owner. |
|--------------------------------|---------------------|------------------|-----------------------------|------------------|---------------------|
| 20 $\frac{7}{8}$ | 15 | ... | 30 $\frac{1}{2}$ | Wyoming . . . | Hon. F. Thellusson. |
| -20 $\frac{1}{4}$ | 16 $\frac{1}{8}$ | 33 $\frac{1}{2}$ | ... | ? | W. H. Root. |
| -19 $\frac{1}{2}$ | ... | 28 $\frac{1}{4}$ | ... | ? | Ph. Oberländer. |
| -19 | 12 $\frac{1}{2}$ | ... | ... | W. Montana . . . | P. Liebingier. |

- Owner's measurements.

| Length on outside curve. | Circum- ference. | Tip to Tip. | Widest inside spread. | Locality. | Owner. |
|--------------------------------|---------------------|------------------|-----------------------------|--------------------------------|---|
| ¹ 18 $\frac{3}{4}$ | 15 | 27 $\frac{1}{2}$ | . | ? | American National Collection. |
| -18 $\frac{1}{2}$ | 15 | 25 | . | Wyoming . . . | P. N. Graham: |
| 18 | 14 | . | . | Montana . . . | F. Sauter. |
| 17 $\frac{3}{4}$ | 12 $\frac{3}{8}$ | 15 $\frac{1}{8}$ | ... | ? | H.R.H. the Duke of Saxe- Coburg and Gotha. |
| -17 $\frac{1}{2}$ | 12 $\frac{1}{2}$ | . | ... | S.W. Montana . . . | Theodore Roosevelt. |
| 17 $\frac{1}{2}$ | 12 | ... | 25 $\frac{1}{2}$ | Wyoming . . . | H.R.H. the Duc d'Orléans. |
| 17 $\frac{1}{2}$ | 13 $\frac{1}{2}$ | 21 | . | ? | Viscount Powerscourt. |
| 17 $\frac{1}{8}$ | 11 $\frac{3}{8}$ | 10 $\frac{3}{8}$ | 17 $\frac{1}{8}$ | ? | British Museum. |
| -17 | 14 | 17 $\frac{1}{2}$ | ... | Yellowstone, Montana | Count E. Hoyos. |
| -16 $\frac{3}{8}$ | 12 $\frac{1}{4}$ | 20 $\frac{3}{8}$ | ... | Wyoming . . . | Dr. Albert von Stephani. |
| -16 $\frac{3}{4}$ | 13 | 19 $\frac{1}{2}$ | . | Nebraska . . . | Imperial Museum, Vienna. |
| 16 $\frac{5}{8}$ | 14 $\frac{1}{4}$ | 24 | ... | Bighorn Mts., Wyoming | Earl of Lonsdale. |
| ¹ 16 $\frac{1}{2}$ | 12 $\frac{1}{2}$ | 19 $\frac{3}{8}$ | ... | Colorado . . . | Sir Edmund G. Loder, Bart. |
| 16 $\frac{1}{4}$ | 13 $\frac{1}{2}$ | 14 $\frac{1}{4}$ | ... | ? | Duke of Portland. |
| ² 16 $\frac{1}{8}$ | 15 $\frac{7}{8}$ | 25 $\frac{3}{4}$ | ... | Colorado . . . | Sir Edmund G. Loder, Bart. |
| -15-8 | 12-14 | 15 | . | Indian Territory near Texas | Prince Henry of Liechten- stein. |
| 15 $\frac{3}{4}$ | 14 | 27 $\frac{3}{4}$ | ... | N.W. Territory . . . | E. G. Jenkins. |
| 15 $\frac{1}{2}$ | 14 $\frac{3}{8}$ | ... | 19 $\frac{3}{4}$ | Wyoming . . . | St. George Littledale. |
| 15 $\frac{1}{8}$ | 10 $\frac{5}{8}$ | 15 $\frac{1}{2}$ | . | Do. . . . | Abel Chapman. |

- Owner's measurements.

¹ Wood Bison.² Prairie.



Skull and Horns of Wild Yak. From a specimen in the British Museum, presented by Mr. A. O. Hume.

The YAK (*Bos* [*Poëphagus*] *grunniens*).

The plateau of Tibet is remarkable for the number of its peculiar mammals, among which is the yak. Apparently its nearest relatives are the bisons, but the yak has not the great elevation of the withers in comparison with the hind-quarters so distinctive of the latter, and the long hair forms a fringe on each side of the flanks, shoulders, and thighs, as well as a tuft on the chest, while the tail is clothed with a huge mass of similar long hair, forming, when cut off and mounted, the well-known "chowries." Yak-horns are much larger than those of living bison, and have a totally different curvature; while there are also important differences in the skull. Height at shoulder from about 4 feet 10 inches to at least $5\frac{1}{2}$ feet; girth behind shoulder, 9 feet $1\frac{1}{2}$ inches; length from between horns to base of tail, 8 feet $\frac{1}{2}$ inch;

tail, 3 feet $2\frac{1}{2}$ inches; from between horns to nose, 1 foot $3\frac{1}{2}$ inches (Major H. M. Biddulph). Weight about 1140 lbs. Wild yak are uniformly blackish brown in colour, any trace of white indicating domestication, and probably cross-breeding.

Distribution.—The plateau of Tibet, part of the Kansu province of China and Northern Ladak, at elevations between about 14,000 and 20,000 feet. The peculiar grunting cry from which the animal takes its name is developed only in the domesticated breeds.

| Length on outside curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|-----------------------------|---------------------|------------------|-------------------|---|
| -39 | ... | ... | ? | Lucknow Museum. |
| -38 $\frac{3}{4}$ | 18 $\frac{1}{2}$ | 26 $\frac{1}{4}$ | Kuenlun Mts. . . | A. O. Hume (shot by late A. Dalglish). |
| 38 $\frac{1}{4}$ | 17 | 19 | Do. . . | British Museum (Hume Collec- tion). |
| 35 $\frac{1}{2}$ | 15 | 16 | ? | E. L. Phelps. |
| 35 $\frac{1}{4}$ | 14 $\frac{1}{2}$ | 17 | Tibet . . . | St. George Littledale. |
| 34 | 12 | 30 $\frac{1}{2}$ | Ladak . . . | Hon. Walter Rothschild. |
| 33 | 16 | 18 | N.W. Tibet . . . | Capt. S. H. Charrington. |
| -32 $\frac{7}{8}$ | 13 $\frac{1}{2}$ | 19 | Tibet . . . | Capt. B. H. Shaw-Stewart. |
| 32 $\frac{3}{4}$ | 16 $\frac{1}{4}$ | 18 $\frac{3}{4}$ | Do. . . . | Major H. M. Biddulph. |
| -32 $\frac{3}{4}$ | 14 | 17 $\frac{1}{8}$ | Do. . . . | Major P. H. G. Powell-Cotton. |
| 32 $\frac{1}{2}$ | 14 $\frac{1}{2}$ | 17 $\frac{1}{4}$ | Do. . . . | P. F. Hadow. |
| 32 $\frac{1}{2}$ | 16 | 25 | Do. . . . | Sir Edmund G. Loder, Bart. |
| 32 $\frac{1}{2}$ | 14 | 14 $\frac{1}{4}$ | Do. . . . | Capt. R. Longstaff. |
| 32 | 13 $\frac{7}{8}$ | 15 $\frac{1}{4}$ | Do. . . . | H. C. V. Hunter. |
| 32 | 14 $\frac{1}{2}$ | 9 | Do. . . . | I. Morse. |
| 32 | 16 | 17 | Do. . . . | P. Church. |
| 32 | 15 $\frac{3}{4}$ | 21 $\frac{3}{4}$ | Do. . . . | Capt. D. L. R. Lorimer. |
| -31 $\frac{7}{8}$ | 14 $\frac{1}{4}$ | 18 $\frac{1}{4}$ | Chang Chenmo . . | Major P. H. G. Powell-Cotton. |
| 31 $\frac{1}{2}$ | 15 $\frac{1}{2}$ | 17 $\frac{1}{4}$ | Chinese Tibet . . | Capt. J. A. Stewart Balmain. |
| 31 $\frac{1}{4}$ | 15 $\frac{1}{2}$ | 13 | Do. . . . | Major H. W. Codrington. |
| 31 $\frac{1}{4}$ | 14 $\frac{1}{2}$ | 16 $\frac{3}{4}$ | Do. . . . | Major E. F. Coates. |
| 31 | 14 | ... | Do. . . . | Col. F. C. Lister-Kay. |
| 31 | 13 $\frac{1}{2}$ | 14 | Ladak . . . | Arnold Pike. |
| 31 | 16 $\frac{1}{4}$ | 17 $\frac{3}{4}$ | Kumaon . . . | E. R. Neave. |

- Owner's measurements.

| Length on outside curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|-----------------------------|---------------------|-------------|-----------|-----------------------------|
| 31 | 14½ | 16¼ | Tibet | Hon. J. D. Boyle. |
| 30¾ | 15 | 20 | Do. | R. S. H. Walford. |
| 30¾ | 16 | 22¼ | Do. | C. F. M. Pike. |
| 30¾ | 13½ | 10½ | Ladak | Sir Robert Harvey, Bart. |
| ♀ 30¾ | 13 | 20 | Do. | Capt. L. Oldfield. |
| ♀ 30 | 11¼ | 45½ | Tibet | Duke of Bedford. |
| 30 | 14¼ | 19¾ | ? | Major Sir W. R. Codrington. |



Skull and Horns of Cow Gaur, from Mr. A. O. Hume's specimen.



Head of Indian Gaur.

The GAUR or INDIAN BISON (*Bos [Bibos] gaurus*).

This splendid wild ox, the so-called bison of Anglo-Indian sportsmen, is the typical representative of a group of Oriental species nearly related to the domesticated ox, but presenting certain well-marked points of difference. Among these may be noted the shorter head and tail, the frequently elliptical section of the horns, and, above all, the presence of a more or less distinct ridge running from the withers to the middle of the back, where it terminates in a sudden step. In the gaur this ridge is strongly developed, and in the typical race the summit of the forehead forms a high arch between the horns, which bends forward to form a concave profile. With the exception of the white "stockings" common to all the members of the group, the colour of the gaur is uniform; but the much flattened horns are of a peculiar yellowish-green tint at the base. The height of adult bulls at the

shoulder usually varies from about 6 feet to 6 feet 4 inches, though specimens of more than 5 feet 5 or 6 inches are not often killed; it is, however, stated that a Nilgiri bull stood 6 feet 10 inches, while Kachar and Burmese bulls have been asserted to reach 7 feet at the withers.

Distribution.—The forest hill-tracts of Peninsular India, Assam, Burma, Siam, and the Malay Peninsula, as well as the forests along the outer Himalaya as far west as Nepal. South of the Ganges, where it has not been exterminated, the gaur inhabits suitable districts in Chutia Nagpur, Orissa, the Northern Circars, Central Provinces, Hyderabad territories, and all the Western Ghats. The Burmese race, or pyun (*B. g. readei*), is nearly black, with a throat-tuft; and in the Malay race, or saladang (*B. g. hubbarki*), the arch on the crown of the skull is less developed, and may be absent.

A.—WILD RACES.

| Widest outside. | Circumference at base. | Tip to Tip. | Widest inside. | Length on outside curve of longest horn. | Locality. | Owner. |
|------------------|------------------------|------------------|------------------|--|----------------------|--|
| 46 | 20 $\frac{1}{2}$ | 33 | 40 | ... | Malay States | H. Da. Prah. |
| 45 $\frac{1}{2}$ | 17 $\frac{1}{2}$ | 36 | 39 $\frac{7}{8}$ | 33 $\frac{1}{2}$ | N. Travancore | G. E. Bewley. |
| 44 $\frac{1}{4}$ | 20 | 42 | 41 $\frac{1}{4}$ | 23 $\frac{1}{2}$ | Eastern Bengal | L. P. Haviland. |
| 44 $\frac{1}{4}$ | 21 | 29 $\frac{1}{2}$ | 38 $\frac{1}{4}$ | 33 $\frac{1}{2}$ | Burma | J. McF. Petters. |
| 43 $\frac{1}{2}$ | 17 $\frac{3}{4}$ | 28 $\frac{3}{4}$ | ... | ... | Travancore | H.H. the Maharaja of Travancore. |
| 43 | 20 | 31 | 38 | 32 | Cooch Behar | H.H. the Maharaja of Cooch Behar. |
| 43 | 20 $\frac{1}{4}$ | 18 $\frac{3}{4}$ | ... | 39 $\frac{1}{4}$ | Salwin, Burma | Bombay Natural History Society's Museum. |
| 43 | 17 | 32 $\frac{1}{2}$ | ... | 29 $\frac{1}{2}$ | Coimbatore, S. India | P. Church. |
| 42 $\frac{1}{2}$ | 18 $\frac{1}{2}$ | 25 | 33 $\frac{1}{4}$ | 33 $\frac{1}{2}$ | Travancore | Capt. T. W. Greenfield. |
| 42 $\frac{1}{2}$ | 19 $\frac{1}{2}$ | 31 | 35 $\frac{3}{4}$ | 31 $\frac{1}{4}$ | Madras | Col. T. J. R. Lucas. |
| 42 | 22 | 29 $\frac{1}{2}$ | ... | ... | Do. | C. W. G. Morris. |
| 41 $\frac{1}{2}$ | 17 | ... | ... | 33 | Burma | S. E. F. Jenkins. |
| 41 $\frac{1}{2}$ | 16 | 30 | ... | 29 | Assam | A. J. Walter. |
| 41 $\frac{1}{2}$ | 19 $\frac{3}{4}$ | 26 $\frac{1}{2}$ | 36 | 31 | Mysore | Capt. C. P. Graham. |
| 41 $\frac{1}{4}$ | 20 | 32 $\frac{1}{2}$ | 36 $\frac{1}{4}$ | 30 | ? | J. F. Bryant. |
| 41 | 18 | 24 | ... | 33 $\frac{3}{4}$ | Madura District | Bethnal Green Museum (J. D. Goldingham). |
| 41 | 17 $\frac{1}{2}$ | 28 $\frac{1}{2}$ | 35 | 31 $\frac{3}{4}$ | Central Provinces | W. J. Considine. |
| 41 | 20 | 34 $\frac{1}{2}$ | 36 $\frac{1}{2}$ | 27 | Siam | J. H. Thurston. |
| 41 | 18 $\frac{1}{2}$ | 32 | 35 $\frac{1}{2}$ | 32 $\frac{1}{4}$ | Upper Burma | H. Shaw Dunn. |

— Owner's measurements.

RECORDS OF BIG GAME

| Widest outside. | Circumference at base. | Tip to Tip. | Widest inside. | Length on outside curve of longest horn. | Locality. | Owner. |
|------------------|------------------------|------------------|------------------|--|------------------------|------------------------------|
| 41 | 19 $\frac{3}{4}$ | 37 | ... | 27 $\frac{3}{4}$ | Kalkerry, S. India | Col. W. E. Fairholme. |
| 40 $\frac{1}{2}$ | 20 | 25 | . | 34 $\frac{3}{4}$ | Vardi Mullay | Baron von Massow. |
| 40 | 19 $\frac{1}{2}$ | 28 $\frac{3}{4}$ | 34 $\frac{1}{2}$ | 31 | Travancore | A. Lampard. |
| 40 | 19 $\frac{1}{4}$ | 26 | 34 $\frac{1}{2}$ | 32 | Burma | A. E. English. |
| 40 | 17 | 31 $\frac{1}{4}$ | 34 | 27 $\frac{1}{2}$ | E. Madras | W. O. Horne. |
| 40 | 15 | 33 $\frac{1}{4}$ | . | 26 | Central Provinces | C. F. Egerton. |
| 39 $\frac{3}{4}$ | 18 $\frac{1}{2}$ | 34 $\frac{1}{4}$ | 35 $\frac{1}{4}$ | 26 $\frac{1}{4}$ | ? | R. M'D. Hawker. |
| 39 $\frac{1}{2}$ | 20 | 25 $\frac{1}{4}$ | 33 $\frac{1}{2}$ | 31 | Anamalies | C. W. Wood. |
| 39 $\frac{1}{2}$ | 17 | 30 $\frac{1}{4}$ | 34 $\frac{1}{2}$ | 28 $\frac{1}{4}$ | ? | Major F. C. Samborne-Palmer. |
| 39 $\frac{1}{2}$ | 20 $\frac{1}{4}$ | 31 | 33 $\frac{1}{2}$ | 27 $\frac{1}{2}$ | ? | Capt. E. W. Thompson. |
| 39 $\frac{1}{2}$ | 18 $\frac{1}{2}$ | 22 | 32 $\frac{1}{2}$ | 33 $\frac{1}{2}$ | ? | A. M. Leake. |
| 39 $\frac{1}{2}$ | 20 $\frac{1}{2}$ | 28 | ... | 27 $\frac{1}{2}$ | Duars | E. T. Partridge. |
| 38 $\frac{3}{4}$ | 17 $\frac{1}{2}$ | 25 $\frac{3}{4}$ | 32 $\frac{3}{4}$ | 30 | ? | A. H. Sharp. |
| 38 $\frac{1}{2}$ | 20 | 23 $\frac{3}{4}$ | 32 | ... | S. Madras | Capt. S. H. Charrington. |
| 38 $\frac{1}{4}$ | 17 $\frac{3}{4}$ | 28 $\frac{1}{2}$ | 33 $\frac{1}{2}$ | 27 $\frac{3}{4}$ | Cooch Behar | H. R. Beaumont. |
| 38 | 18 | 22 $\frac{1}{2}$ | 33 | 31 $\frac{3}{4}$ | Madras | S. Cox. |
| 38 | 18 | 23 $\frac{1}{4}$ | 32 | 29 | Burma | H. E. Beamish. |
| 38 | 19 | 18 | 31 | 34 $\frac{1}{2}$ | ? | Sir Edmund G. Loder, Bart. |
| 38 | 19 $\frac{1}{2}$ | 24 | 31 $\frac{1}{2}$ | 31 | ? | Rev. H. C. B. Stone. |
| 37 $\frac{1}{2}$ | 19 $\frac{1}{2}$ | 24 $\frac{1}{4}$ | 30 $\frac{3}{4}$ | 31 | Mysore | Viscount Powerscourt. |
| 37 $\frac{1}{2}$ | 20 $\frac{3}{4}$ | 33 | 33 $\frac{1}{4}$ | 25 | Burma | Capt. T. A. Headlam. |
| 37 $\frac{1}{2}$ | 18 | 19 | 32 $\frac{1}{4}$ | 31 | ? | Colonel Baillie. |
| 37 $\frac{1}{4}$ | 18 $\frac{1}{2}$ | 26 $\frac{1}{2}$ | 31 $\frac{3}{4}$ | 28 | C. Provinces | J. C. T. Fairweather. |
| 37 $\frac{1}{4}$ | 20 | 25 | 31 $\frac{1}{4}$ | 29 | Chutia Nagpur District | Lieut.-Col. J. W. Yardley. |
| 37 | 17 $\frac{1}{4}$ | 31 $\frac{1}{2}$ | 33 | 24 | ? | Marquis of Stafford. |
| 36 $\frac{1}{2}$ | 21 $\frac{1}{2}$ | 22 $\frac{1}{4}$ | 29 $\frac{3}{4}$ | 28 | Pahang | J. Scott Mason. |
| 36 $\frac{1}{2}$ | 17 $\frac{1}{2}$ | 17 | . | 28 | Mysore | Lieut.-Col. G. H. Evans. |
| 36 $\frac{1}{2}$ | 18 $\frac{1}{4}$ | 26 $\frac{3}{4}$ | ... | 26 $\frac{1}{2}$ | ? | Lieut.-Col. R. H. Fraser. |
| 36 $\frac{1}{4}$ | 18 $\frac{1}{2}$ | 20 $\frac{3}{4}$ | 29 $\frac{3}{4}$ | 29 $\frac{1}{2}$ | Marutha | J. G. Heyder. |
| 36 | 17 $\frac{1}{4}$ | 23 $\frac{1}{4}$ | 29 $\frac{1}{2}$ | 28 | S. India | Capt. C. S. Timins. |
| 36 | ... | 21 $\frac{1}{4}$ | 31 $\frac{1}{4}$ | 24 $\frac{1}{2}$ | Malay States | H. E. Stewart. |
| 36 | 19 $\frac{1}{2}$ | 15 $\frac{1}{4}$ | 29 | 34 | ? | Col. F. J. Eveleigh. |
| 35 $\frac{3}{4}$ | 19 $\frac{3}{4}$ | 16 $\frac{3}{4}$ | 29 $\frac{3}{4}$ | 27 $\frac{3}{4}$ | ? | Major C. C. Luard. |

- Owner's measurements.

| Widest outside. | Circumference at base. | Tip to Tip. | Widest inside. | Length on outside curve of longest horn. | Locality. | Owner. |
|------------------|------------------------|------------------|------------------|--|-----------------|--------------------------------|
| 35 $\frac{1}{4}$ | 17 | 24 $\frac{3}{4}$ | 30 | 27 | ? | W. A. Conduitt. |
| 35 $\frac{1}{2}$ | 17 $\frac{1}{2}$ | 16 $\frac{3}{4}$ | 30 | 31 $\frac{1}{2}$ | Burma . . | Capt. H. V. Venables Kyrke. |
| 35 $\frac{1}{2}$ | 16 | 18 | 31 | 25 $\frac{1}{2}$ | ? | E. R. Collins. |
| 35 $\frac{1}{2}$ | 17 $\frac{1}{2}$ | 23 | 29 $\frac{1}{4}$ | 25 $\frac{1}{2}$ | Nilambur . . | Capt. J. A. Busfeild. |
| 35 $\frac{1}{2}$ | 17 $\frac{1}{2}$ | 28 | 30 | 24 $\frac{1}{2}$ | C. Provinces . | Lieut.-Col. F. W. Caton Jones. |
| 35 $\frac{1}{2}$ | 17 $\frac{1}{2}$ | 21 $\frac{1}{2}$ | 29 $\frac{3}{4}$ | 29 $\frac{1}{2}$ | Do. . . | W. J. Considine. |
| 35 $\frac{1}{4}$ | 18 | 21 | 29 $\frac{1}{2}$ | 28 $\frac{1}{4}$ | Do. . . | Col. C. B. Wood. |
| 35 | 19 $\frac{1}{2}$ | 21 | 28 $\frac{3}{4}$ | 30 $\frac{3}{4}$ | Perak . . | F. O. B. Dennys. |
| 35 | 17 $\frac{1}{2}$ | 22 $\frac{1}{2}$ | 30 | 27 $\frac{1}{2}$ | C. Provinces . | Capt. W. P. H. Hill. |
| 35 | 17 | 18 $\frac{1}{4}$ | 28 $\frac{1}{4}$ | 26 | Burma . . | Major St. J. Killery. |
| 34 $\frac{1}{2}$ | 17 $\frac{3}{4}$ | 18 $\frac{1}{2}$ | 27 $\frac{1}{4}$ | 31 $\frac{3}{4}$ | ? | Surg.-Gen. F. W. Trevor. |
| 34 | 17 $\frac{3}{4}$ | 24 | ... | ... | Malay States . | T. R. Hubback. |
| 27 | 13 $\frac{1}{4}$ | 13 | 22 | 24 | N. Travancore . | A. O. Hume. |

- Owner's measurements.

RECORDS OF BIG GAME

| Widest inside. ¹ | Circumference at base. | Tip to Tip. | Length on outside curve of longest horn. | Locality. | Owner. |
|-----------------------------|------------------------|------------------|--|-------------------|-----------------------------------|
| 39 | 17 $\frac{3}{4}$ | 28 $\frac{1}{2}$ | 29 $\frac{1}{2}$ | Siam . . | A. Waley. |
| 37 $\frac{1}{4}$ | 18 $\frac{1}{2}$ | 22 | 30 $\frac{1}{4}$ | Travancore . | A. T. Mackenzie. |
| 36 | 17 | 26 $\frac{1}{4}$ | 27 $\frac{1}{2}$ | Assam . . | L. Truninger. |
| 36 | 15 | 26 $\frac{1}{4}$ | 26 | Central Provinces | Major John Fuller. |
| 35 | 17 $\frac{1}{4}$ | 20 $\frac{1}{4}$ | 27 $\frac{1}{2}$ | Tezapore, Assam | A. Y. Thomson. |
| 35 | 18 | 23 | 26 | Burma . . | Capt. S. L. Robinson. |
| 34 $\frac{3}{4}$ | 18 | 22 $\frac{1}{2}$ | 28 | Assam . . | Hon. S. Tollemache. |
| 34 $\frac{1}{2}$ | 18 | 23 $\frac{1}{2}$ | 33 $\frac{1}{8}$ | Cooch Behar . | H.H. the Maharaja of Cooch Behar. |
| 34 | 18 $\frac{1}{4}$ | 20 $\frac{1}{4}$ | 27 $\frac{1}{2}$ | Travancore . | Lt.-Col. the Hon. E. Baring. |
| 34 | 15 $\frac{3}{4}$ | 24 $\frac{5}{8}$ | 24 $\frac{1}{2}$ | ? | Major H. De Prée. |
| 34 | 19 | 27 | 24 | Burma . . | W. F. Loftus-Tottenham. |
| 33 $\frac{3}{4}$ | 18 | 23 $\frac{3}{4}$ | 25 | Kanara . . | Major G. J. Fitzgerald. |
| 33 $\frac{1}{2}$ | 18 | 15 $\frac{3}{4}$ | 28 $\frac{1}{2}$ | Travancore . | Capt. H. L. Cottingham. |
| 33 $\frac{1}{2}$ | 15 | 22 | 23 | Assam . . | Col. E. T. Paul. |
| 32 $\frac{3}{4}$ | 17 $\frac{1}{8}$ | 32 $\frac{1}{4}$ | 27 $\frac{7}{8}$ | Central Provinces | Major C. S. Cumberland. |
| 32 $\frac{3}{4}$ | 18 $\frac{1}{2}$ | 23 $\frac{3}{8}$ | 26 | Do. | Major G. de H. Smith. |
| 32 $\frac{1}{2}$ | 19 | 16 $\frac{1}{2}$ | 26 | Do. | Major C. F. Pinney. |
| 32 $\frac{1}{2}$ | 17 $\frac{1}{8}$ | 21 $\frac{3}{8}$ | 31 $\frac{5}{16}$ | Travancore . | A. O. Hume. |
| 32 $\frac{1}{4}$ | 17 $\frac{1}{2}$ | 20 $\frac{1}{2}$ | 33 | ? | Lieut.-Col. P. Z. Cox. |
| 32 | 19 $\frac{1}{4}$ | 18 $\frac{1}{4}$ | 39 | N. Travancore . | A. W. Turner. |
| ♀ 22 | 10 $\frac{1}{2}$ | 14 $\frac{5}{8}$ | 22 | ? | Major H. De Prée. |
| ♀ ... | 11 $\frac{1}{2}$ | ... | 19 $\frac{1}{2}$ | N. Kanara . | Lieut.-Col. L. L. Fenton. |
| ♀ 15 $\frac{1}{2}$ | 12 | 2 $\frac{1}{4}$ | 23 $\frac{1}{2}$ | Mysore . . | Major H. S. Wood. |

¹ Please note these measurements are inside.

MEASUREMENTS OF ENTIRE SPECIMENS KINDLY FURNISHED BY I. H. THE MAHARAJA OF COCH Behar.

| Sex. | One horn round outer curves. | Horns, Tip to Tip, round outer curves. | Base of horn. | Between tips. | Widest spray. | Height at shoulder. | Height at the hump. | Total length of animal between sticks. | Length of body between sticks. | Girth just behind shoulder. | REMARKS. |
|------|------------------------------|--|------------------|------------------|------------------|---------------------|---------------------|--|--------------------------------|-----------------------------|--|
| | | | | | | hds. ins. | hds. ins. | ft. ins. | ft. ins. | ins. | |
| Bull | ... | 84 | 21 | 31 $\frac{1}{2}$ | 43 | 18 2 $\frac{1}{2}$ | 19 3 | 12 3 | 9 5 | 118 | Record head shot Cooch Behar. |
| " | 32 $\frac{1}{2}$ | 81 $\frac{1}{2}$ | 18 $\frac{1}{2}$ | 23 $\frac{1}{2}$ | 40 $\frac{3}{4}$ | 18 3 $\frac{1}{2}$ | 20 3 | 12 3 $\frac{1}{2}$ | 9 4 $\frac{3}{4}$ | 120 | |
| " | 30 $\frac{7}{8}$ | 78 $\frac{1}{2}$ | 19 $\frac{3}{4}$ | 23 $\frac{1}{2}$ | 39 | 18 3 | 19 3 $\frac{1}{2}$ | 12 2 | 9 5 $\frac{1}{2}$ | 120 | |
| " | ... | 77 | 18 $\frac{3}{4}$ | ... | ... | 17 3 $\frac{1}{2}$ | 18 3 $\frac{3}{4}$ | 12 2 | 9 1 $\frac{1}{2}$ | 112 | |
| " | 30 $\frac{1}{2}$ | 76 $\frac{3}{4}$ | 18 | 24 $\frac{3}{4}$ | 39 $\frac{1}{2}$ | 18 0 $\frac{1}{2}$ | 19 1 | 12 1 $\frac{1}{2}$ | 9 3 | 115 | |
| " | 30 $\frac{1}{2}$ | 76 $\frac{1}{2}$ | 20 $\frac{1}{2}$ | 26 $\frac{1}{2}$ | 39 | 18 3 $\frac{3}{4}$ | 20 0 $\frac{1}{2}$ | 12 3 $\frac{3}{4}$ | 9 6 $\frac{1}{2}$ | 124 | Record bull as regards bulk and height. |
| " | ... | 72 | 20 $\frac{1}{2}$ | 20 $\frac{3}{4}$ | ... | 18 3 $\frac{1}{2}$ | ... | 12 2 $\frac{1}{2}$ | 9 5 | 116 | |
| " | 26 $\frac{3}{4}$ | 69 $\frac{1}{2}$ | 18 $\frac{1}{2}$ | 30 $\frac{3}{4}$ | 39 $\frac{1}{2}$ | 18 3 $\frac{3}{4}$ | 19 0 $\frac{1}{2}$ | ... | ... | ... | |
| Cow | ... | 73 $\frac{1}{2}$ | ... | ... | ... | 17 1 $\frac{1}{2}$ | 17 3 | ... | ... | 90 | Record cow's head—looked like a bull a little way off. |



Skull and Horns of Gayal. From Mr. A. O. Hume's specimen.

B.—DOMESTICATED BREED or GAYAL.

The gayal is a rather smaller animal than the wild gaur, nearly black in colour, with a large dewlap, and a straight line between the bases of the massive horns, which are but little divergent, curved upwards, nearly cylindrical in section, and of dark colour. The head is short, with the forehead broad and flat. The gayal, or mithan, is a domesticated breed of the gaur, probably derived from the Malay and Tenasserim race of the latter.

Distribution.—Kept in a semi-domesticated condition by many of the hill-tribes of Assam, Chittagong, etc.

| Length on outside curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|-----------------------------|---------------------|------------------|----------------|---------------------------------|
| 17 $\frac{1}{4}$ | 17 | 41 | ? | British Museum. |
| 15 | 11 $\frac{1}{2}$ | 26 $\frac{3}{8}$ | ? | Do. |
| 14 $\frac{1}{2}$ | 13 $\frac{1}{2}$ | 28 | Tenasserim . . | A. O. Hume. (See illustration.) |
| 14 | 14 | ... | ? | Indian Museum. |
| 12 $\frac{5}{8}$ | 13 $\frac{1}{4}$ | 27 $\frac{3}{4}$ | ? | British Museum. |

Owner's measurements.



Head of Tsaine or Burmese Bantin. From a specimen shot by
Lieut.-Col. H. D'U. Keary.

The BANTIN or TSAINE (*Bos* [*Bibos*] *sondaicus*).

This member of the gaur group departs somewhat less widely from the normal type of cattle than does the gaur, the ridge on the withers being less developed, and the horns almost cylindrical. The cows are always reddish coloured, although the bulls may be black, and in the latter sex at least there is always a large white patch on the rump. Very distinctive of the species is the presence of a horny shield on the crown of the head connecting the bases of the horns. Height at shoulder about 5 feet 9 inches. The humped cattle of India are probably domesticated derivatives of the bantin.

Distribution.—Burma, the Malay Peninsula, Siam, Borneo, Java, Bali, and perhaps Sumatra. At least two distinct races of the bantin are distinguishable. First, the true bantin, or Java ox (*B. sondaicus typicus*), from Java, and perhaps some of the other Malay islands and the Peninsula. In this race the old bulls become of a deep blackish-brown colour. The same tint is characteristic of the old male bantin in Borneo, but the horns are directed more uprightly. The second well-defined race is the tsaine (*B. sondaicus birmanicus*), which inhabits Burma, and may extend northwards to Manipur.

Old bulls generally retain the fawn-colour of the cows throughout life, showing more or less of grey on the head, but it is stated that very old individuals are occasionally nearly black. The Siamese tsaine, which is occasionally profusely speckled with white, has been named *B. s. porteri* (*Proc. Zool. Soc.* 1910, p. 669).

| Length on outside curve. | Circum- ference. | Tip to Tip. | Widest inside. | Widest outside. | Locality. | Owner. |
|--------------------------------|---------------------|----------------|-------------------|--------------------|----------------|----------------------------------|
| 34½ | 11¾ | 21 | 32½ | 36¾ | Cochin China . | H.R.H. the Duc de Montpensier. |
| -33½ | 17 | 26¾ | 35 | ... | Upper Burma . | Major H. S. Wood. |
| 31½ | 16½ | 21½ | 31½ | 36½ | Do. . | H. W. James. |
| 30½ | 15¾ | 27¾ | 36 | ... | Do. . | S. E. F. Jenkins. |
| 30 | 16½ | 24½ | 32 | ... | Do. . | Capt. H. W. Marsden. |
| -30 | 17 | ... | ... | ... | Java . | Indian Museum. |
| 29 | 16 | 28 | 34¾ | ... | Burma . | H. L. P. Walsh. |
| 29 | 15½ | 24 | 33 | ... | Do. . | J. P. Cook. |
| -28½ | 17½ | 30½ | 36 | ... | Do. . | Lieut.-Col. G. H. Evans. |
| 28½ | 17¾ | 28½ | 34 | ... | Do. . | W. O. Hannington. |
| 28½ | 16¾ | 40¾ | 40¾ | ... | Do. . | Capt. T. A. Headlam. |
| -28½ | 15 | 26½ | 36¾ | ... | Do. . | H. Van Son. |
| 27¾ | 14¾ | 19½ | 30½ | 35 | Do. . | Capt. J. M. Stewart. |
| 27½ | 15 | 34½ | 38¾ | 42¾ | Do. . | Col. H. D'U. Keary. |
| 27 | 14½ | 20½ | 28½ | ... | Upper Burma . | British Museum (R. M'D. Hawker). |
| 27 | 17¾ | 24¾ | 32¾ | ... | Do. . | J. McF. Petters. |
| 26½ | 16½ | 21½ | 28 | ... | Java . | Sir Edmund G. Loder, Bart. |
| 26½ | 14½ | 24½ | 32 | ... | Lower Burma . | S. F. Hopwood. |
| 26 | 16¾ | 32 | 35 | 39¾ | Burma . | Capt. C. P. Gunter. |
| 25¾ | 16¾ | 20¾ | 26¾ | ... | Siam . | H. C. V. Hunter. |
| 25¾ | 17¾ | 13 | 24 | ... | Burma . | Major C. S. Cumberland. |
| 25 | 15 | 22¾ | 28 | 32¾ | Java . | Hon. Walter Rothschild. |
| 24½ | 16 | 21½ | 28½ | 33 | Do. . | L. P. Haviland. |
| 24 | 16 | 25 | 30 | 33½ | ? | E. V. Ellis. |
| -24 | 16½ | 24 | 28¾ | ... | Borneo . | P. C. Brackenbury. |
| 23¾ | 14 | 21½ | 11 | 26½ | Java . | British Museum. |
| 23 | 16¾ | 30 | 29¾ | ... | Do. . | C. W. A. Buma. |
| ♀ 23 | 12½ | 16½ | 25 | ... | Upper Burma . | R. M'D. Hawker. |
| ♀ 22½ | 13½ | 15½ | 23 | ... | Java . | C. W. A. Buma. |
| 22 | 14½ | 11½ | 20½ | 24½ | Borneo . | H. P. Perry. |

- Owner's measurements.

DOMESTICATED CATTLE (*Bos taurus* and *B. indicus*).

The ordinary domesticated cattle of Europe such as the Spanish fighting bull, the Kerry, Pembroke, Highland, and Jersey breeds, are the descendants of the primitive wild ox, or aurochs (a name frequently misapplied to the bison) of Europe and North Africa (*Bos taurus primigenius*), now completely extinct in the wild state, although it survived on the Continent till the Middle Ages. On the other hand, some of the large light-coloured cattle of Southern Europe, such as the draught oxen of Northern Spain, and the cattle of Italy, Greece, and Hungary, appear to be derived from the zebu, although some have been crossed with North European cattle. Their horns are unlike those of the aurochs. The zebu or humped cattle of India and the Galla cattle of Africa evidently represent a distinct species (*Bos indicus*), probably descended from the bantian. To the same species belong the Ankoli cattle of Uganda and the ancient Egyptian long-horned breed, as well as the trek oxen of the Cape, in all of which the hump is obsolete.

| Length on outside curve. | Circumference. | Tip to Tip. | Widest inside. | Locality. | Owner. |
|--------------------------|------------------|-------------------|----------------|-------------------------|---|
| 81 $\frac{1}{4}$ | 18 $\frac{1}{4}$ | 103 $\frac{1}{2}$ | ... | Ngamiland . | The late W. C. Oswell. |
| -? | 17 | 100 | 124 | Do. . | A. Ohlsson. |
| 57 | 17 | 72 | ... | South Africa | W. A. Simpson Hinchliffe. |
| 57 | 19 $\frac{1}{2}$ | 82 | ... | Bechuanaland | Sir Edmund G. Loder, Bart. |
| 56 $\frac{1}{2}$ | 17 $\frac{1}{2}$ | 76 $\frac{1}{4}$ | ... | South Africa . | R. A. Cooper. |
| 56 | ... | 101 | ... | Ngamiland . | British Museum. |
| 48 $\frac{7}{8}$ | 16 $\frac{3}{4}$ | 67 | ... | German E. Africa | Berlin Museum. |
| 47 | 15 $\frac{5}{8}$ | 21 $\frac{1}{8}$ | ... | Gallaland . | British Museum (Sir H. Salt). |
| 42 $\frac{1}{8}$ | 23 $\frac{5}{8}$ | 22 $\frac{1}{8}$ | ... | Central Africa | British Museum (Capt. Clapperton, R.N., and Col. Denham). |
| 41 $\frac{3}{4}$ | 14 | 52 $\frac{3}{4}$ | ... | Madagascar . | Bethnal Green Museum. |
| 41 $\frac{1}{2}$ | 14 $\frac{1}{2}$ | ... | ... | Ankoli . | British Museum. |
| 40 $\frac{1}{4}$ | 12 $\frac{1}{4}$ | 60 $\frac{7}{8}$ | ... | Vienna (Polish Bull) | Do. |
| 39 $\frac{1}{2}$ | 15 | 51 $\frac{1}{4}$ | ... | Uganda . | C. Craig. |
| 38 $\frac{5}{8}$ | 12 $\frac{5}{8}$ | 53 $\frac{7}{8}$ | ... | Hungary . | Dr. Albert von Stephani. |
| 38 $\frac{1}{2}$ | 10 $\frac{1}{2}$ | 54 $\frac{1}{4}$ | ... | Italy . | Bethnal Green Museum. |
| 37 $\frac{3}{4}$ | 12 | 60 | ... | Cape of Good Hope | British Museum. |
| 31 $\frac{1}{2}$ | 10 $\frac{1}{4}$ | 23 $\frac{3}{4}$ | ... | Gallaland . | A. E. Butter. |
| 31 | 18 | 32 $\frac{1}{2}$ | ... | Nigeria . | P. M. Dwyer. |
| 30 $\frac{1}{8}$ | 12 $\frac{3}{8}$ | 35 | ... | Spain . | British Museum. |
| 29 $\frac{3}{8}$ | 11 $\frac{1}{8}$ | 28 $\frac{7}{8}$ | ... | Gambia . | British Museum (13th Earl of Derby). |

- Owner's measurements.

| Length on outside curve. | Circumference. | Tip to Tip. | Widest inside. | Locality. | Owner. |
|--------------------------|------------------|------------------|----------------|--------------------------------|------------------------------------|
| 17 $\frac{1}{2}$ | 10 $\frac{3}{4}$ | 30 $\frac{1}{2}$ | ... | Buenos Aires (Niata Cattle) | British Museum (G. Claraz). |
| 17 $\frac{1}{8}$ | 10 $\frac{3}{4}$ | 25 $\frac{1}{2}$ | ... | India . . | British Museum. |
| 12 $\frac{1}{8}$ | 8 | 16 $\frac{1}{8}$ | ... | Angola . . | Sir Victor Brooke's Collection. |
| 11 $\frac{1}{2}$ | 7 $\frac{1}{2}$ | single horn | ... | Nepal . . | British Museum (B. H. Hodgson). |

The following specimens belong to British white park-cattle, which, although now half wild, are the descendants of domesticated breeds, probably nearly allied to the Pembroke :—

| Length on outside curve. | Circumference. | Tip to Tip. | Widest inside. | Locality. | Owner. |
|--------------------------|------------------|------------------|------------------|---------------------|--|
| 18 $\frac{1}{2}$ | 9 $\frac{1}{2}$ | 36 $\frac{1}{2}$ | ... | Chartley Park | Hon. Walter Rothschild. |
| 18 $\frac{1}{2}$ | 7 | 34 $\frac{3}{4}$ | ... | Do. | Major James Grant. |
| 18 $\frac{1}{2}$ | 10 $\frac{3}{4}$ | 20 | 21 $\frac{1}{8}$ | Chillingham Park | British Museum (Earl of Tankerville). |
| ♀ 18 $\frac{1}{4}$ | 7 | 10 $\frac{1}{8}$ | 15 $\frac{3}{8}$ | Do. | Do. |
| 15 $\frac{1}{2}$ | 9 $\frac{5}{8}$ | 17 $\frac{3}{8}$ | 18 $\frac{1}{8}$ | Northumber- land | British Museum (Duke of Hamilton). |
| 15 | 7 $\frac{1}{2}$ | 20 $\frac{3}{4}$ | ... | Chartley Park | Capt. G. W. Hill, R.N. |

The HIPPOPOTAMUS (*Hippopotamus amphibius*).

| | | |
|-----------------------------|---------------------------|---------------------------|
| <i>Gumari</i> , Abyssinian. | <i>Robi</i> , Galla. | <i>Jir</i> , Somali. |
| <i>Ikubu</i> , Basuto. | <i>Dorina</i> , Hausa. | <i>Kiboko</i> , Swahili. |
| <i>Zee-koe</i> , Boer. | <i>Macow</i> , Masai. | <i>Invubu</i> , Swazi. |
| <i>Mourvu</i> , Chilala. | <i>Tumunto</i> , M'Kua. | <i>Moubu</i> , Waganda. |
| <i>Dul</i> , Danakil. | <i>Gerunt</i> , Sudanese. | <i>Chivkubwe</i> , Chila. |

Such a familiar animal as the uncouth and unwieldy hippopotamus—the largest member of the swine group—requires but little in the way of description here. It is distinguished from the pigs and warts-hogs by the broad and rounded muzzle—so unlike the disc-shaped snout of the latter—and consequently typifies a family by itself. The tusks and molars are likewise of a totally different and distinctive type; while the feet have four sub-equal toes with symmetrical, rounded nails. In all its organisation the hippopotamus is beautifully adapted for a semi-aquatic life; the eyes and nostrils forming the highest points of the head, and thus allowing it to come up and breathe with the least possible exposure of its body. The weight of a full-grown bull hippo is at least three tons, and the total length about 14 ft. Height at shoulder about 3 ft. 10 ins. Hippos are chiefly hunted for the sake of their hides, which are manufactured into sjamboks, or raw-hide whips. Their tusks have also a certain commercial value,

although not so great as formerly, when they were employed for artificial teeth.

Distribution.—Formerly this animal frequented most of the rivers of Africa south of the Sahara, but it has long since been exterminated from the lower reaches of the Nile, and is daily becoming scarcer in the South African rivers. In the Zambesi, where it is less easily attacked than in the smaller rivers of Mashonaland, it is still abundant, as it also is in the Chobi and neighbouring rivers, as well as in Lake Ngami; and even in the lower reaches of the Orange River a few are still to be met with. North of the Zambesi these animals occur in great numbers.

In Liberia and adjacent parts of the West Coast occurs the much smaller pigmy hippopotamus (*H. liberiensis*), an animal measuring only some 6 feet in length, and possessing more the habits of a pig. It also differs from the typical species by having, as a rule, only one (instead of two) pair of incisor teeth between the tusks.

Lower Curved Tusks, or Canines.

| Length round outside curve. | Circumference. | Locality. | Owner. |
|-----------------------------|----------------|-------------------------|--------------------------------------|
| ¹ 64½ | 7½ | E. Africa . . . | F. J. Jackson. |
| ² 54½ | 6¾ | B.E. Africa . . . | Dr. G. A. Macdonald. |
| ² -51 | 9 | S.E. Africa . . . | J. Lamont. |
| 41½ | 8½ | Do. . . . | Hon. Walter Rothschild. |
| ² 41 | 8 | Tana River, East Africa | J. Benett Stanford. |
| ³ -38 | ... | Nyasaland . . . | Major P. W. Forbes. |
| ³ 37½ | 8½ | Shiré River . . . | Capt. A. T. Hunt, R.N. |
| 33 | 9½ | N.W. Rhodesia . . . | K. C. North. |
| 32 | 9½ | Lualaba, Central Africa | S. L. Hinde. |
| 31¾ | 6¾ | B.C. Africa . . . | F. W. Bowman. |
| 31¾ | 10¾ | ? | Sir Clement Hill. |
| 31¾ | 9¾ | ? | Sir Edmund G. Loder, Bart. |
| 31½ | 9 | ? | E. L. Fletcher. |
| 31 | 10 | N.E. Rhodesia . . . | G. M. E. Leyer. |
| 30¾ | 9½ | Abyssinia . . . | D. P. MacGillivray. |
| 30½ | 7¾ | Sierra Leone . . . | Major G. S. M ⁴ Laughlin. |
| -30½ | 8 | Lower Zambesi . . . | H. M. von Archer. |
| 30 | 9 | Shiré River . . . | Surgeon J. Dowson, R.N. |
| 30 | 9 | Zambesia . . . | E. W. Tompson. |
| 30 | 9 | British Central Africa | R. M. Irwin. |
| -29½ | ... | N. Nigeria . . . | Capt. C. F. Watson. |
| 28¾ | 8½ | Gold Coast . . . | H. J. Hobbs. |
| ⁴ 22 | 9½ | N. Nigeria . . . | F. B. Shafto. |

- Owner's measurements.

¹ Protruding from jaw.

² Malformed.

³ Malformed and protruding from jaw.

⁴ Protruding from gum.

Lower Straight Tusks, or Incisors.

| Length round outside curve. | Circumference. | Locality. | Owner. |
|-----------------------------|-----------------|-------------------|----------------------------|
| 21 $\frac{1}{2}$ | 7 $\frac{3}{4}$ | Abyssinia . . . | D. P. MacGillivray. |
| 20 $\frac{3}{4}$ | 6 $\frac{3}{4}$ | Lower Zambesi . . | Sir Edmund G. Loder, Bart. |
| 18 $\frac{1}{2}$ | 6 $\frac{1}{2}$ | Nigeria . . . | Major J. A. Burdon. |
| 18 $\frac{1}{4}$ | 7 $\frac{1}{4}$ | N.W. Rhodesia . . | K. C. North. |



A Pigmy Hippopotamus.

The PIGMY HIPPOPOTAMUS (*Hippopotamus liberiensis*).

Measurements of a specimen shot near Salon, on the Mauwa River, about 2 miles from the Liberian frontier :—

| | |
|---|-----------------------|
| Length from nose to tip of tail | 78 $\frac{1}{2}$ ins. |
| Height at withers | 37 ins. |
| Girth behind shoulders | 56 ins. |
| Weight about | 600 lbs. |
| Curved tusks measured 3 $\frac{5}{8}$ and 3 $\frac{3}{8}$ ins. (projecting from skull); girth | 3 $\frac{3}{8}$ ins. |

Skull measurements of a Liberian specimen in the Tring Museum :—

| | |
|--------|-----------------------|
| Length | 13 $\frac{1}{8}$ ins. |
| Width | 7 $\frac{3}{4}$ ins. |
| Weight | 5 lbs. |

| Tusks. Total length. | Girth. | Locality. | Owner. |
|-------------------------|-----------------|---|---------------------|
| 8 | 2 $\frac{5}{8}$ | { Skarcies River, Karene District, Sierra Leone } | Capt. E. J. Carter. |
| 8 | 2 $\frac{3}{4}$ | | |



Abnormal Lower Tusk of Wild Boar.

The WILD BOAR (*Sus scrofa*).

Several of the Asiatic species of wild swine, forming, together with the European wild boar, the typical group of the genus *Sus*, are so like each other that it is often a matter of difficulty to discriminate between them, and naturalists are not yet in accord as to the number of species which should be recognised. The European wild boar is a large coarsely-haired species, with an under coat of woolly fur, no warts on the face, and standing from about 33 to 36 inches at the shoulder. It often lacks the crest or mane of long black bristles running from the nape down the back in its Indian cousin *S. cristatus*; and the last tooth in the lower jaw is of a rather less complex structure than in the latter.

A Spanish boar killed by H.R.H. the Duc d'Orléans weighed 302 lbs.

Distribution.—Europe, North Africa, and South-Western and Central Asia.

Tusks.

| Length on outside curve. | | Length of tusk out of gum. | Locality. | Owner. |
|-----------------------------|-------|----------------------------------|------------------------------|-----------------|
| Right. | Left. | | | |
| 13 | ... | ... | Albania | Lord Brackley. |
| -13 | ... | ... | New Zealand (introduced) . . | G. W. Campbell. |

— Owner's measurements.

| Length on outside curve. | | Length of tusk out of gum. | Locality. | Owner. |
|-------------------------------|-----------------|----------------------------------|----------------------------|---|
| Right. | Left. | | | |
| 12 | ... | ... | Albania | Lord Carnegie. |
| -11 $\frac{1}{2}$ | ... | ... | Caucasus | Col. Veernhof. |
| -11 $\frac{1}{4}$ | ... | ... | Do. | Major Robert Finnie. |
| 11 | ... | ... | New Zealand (introduced) . | H. J. Mussen. |
| 9 $\frac{7}{8}$ | ... | ... | Andalusia | H.R.H. the Duc de Montpensier. |
| 9 $\frac{3}{4}$ | ... | ... | Asia Minor | Admiral Sir Michael Culme-Seymour, Bart. |
| ¹ 9 $\frac{5}{8}$ | ... | ... | Caucasus | Prince E. Demidoff. |
| 9 $\frac{1}{2}$ | .. | ... | Do. | Do. |
| 9 | ... | ... | Albania | Sir Reginald Cathcart, Bart. |
| -8 $\frac{5}{8}$ | ... | ... | Algeria | Sir Edmund G. Loder, Bart. |
| ² -8 $\frac{1}{2}$ | 8 $\frac{1}{8}$ | 3 | Near Bona, Algeria . . | Viscount Edmond de Poncins. |
| -8 $\frac{1}{8}$ | ... | ... | Algeria | Lieut.-Col. J. Marriott. |
| 8 | 2 $\frac{1}{2}$ | ... | Russia | Count J. Potocki. |

¹ Weight, 372 lbs.² Weight, 275 lbs. clean.

Head of Wild Boar.

The following specimens belong to the Indian Sus cristatus:—

| Length on outside curve. | | Locality. | Owner. |
|-----------------------------|--|--------------------------|---|
| | | | |
| 14 $\frac{7}{8}$ | | Behar, Purneah | Capt. L. Cheape. |
| 14 $\frac{3}{4}$ | | Purneah | H. R. P. Carter, recorded in <i>Field</i> , 19th January 1895. (See illustration, p. 453.) |
| 14 $\frac{3}{8}$ | | Hills above Jamu | Col. Sir Neville Chamberlain. |
| 12 $\frac{5}{8}$ | | Gosrama | V. N. Hickley. |
| 12 $\frac{1}{2}$ | | Upper Assam | J. D. Berrington. |

— Owner's measurements.

| Length on outside curve. | Weight. | Locality. | Owner. |
|-----------------------------|----------|-----------------------------|---------------------------------|
| 11 | ... | North Borneo | C. F. Brook. |
| 11 $\frac{1}{2}$ | . | ? | C. F. Knyvett. |
| 10 $\frac{5}{8}$ | .. | North Kanara | Bombay Natural History Society. |
| 10 $\frac{1}{2}$ | ... | Burma | Mrs. O. F. Wheeler Cuffe. |
| 10 $\frac{1}{2}$ | . | ? | Meerut Tent Club. |
| 10 $\frac{3}{4}$ | .. | Assam | N. Williamson. |
| 10 $\frac{1}{4}$ | . | Meerut | A. F. Brooke. |
| 9 $\frac{3}{4}$ | . | ? | Meerut Tent Club. |
| 9 $\frac{3}{4}$ | ... | ? | Dr. Travers. |
| 9 $\frac{1}{2}$ | . | Burma | Langford Whitehouse. |
| 9 $\frac{3}{8}$ | . | North Kanara | Lieut.-Col. L. L. Fenton. |
| 9 $\frac{3}{8}$ | . | Central Provinces | Lieut.-Col. J. S. Ashby. |
| 9 $\frac{1}{8}$ | ... | Ceylon | Major F. H. N. Pym. |
| 9 | 182 lbs. | Jhelam | Capt. W. F. Brayne. |
| 8 $\frac{3}{4}$ | . | Oudh | J. C. Faunthorpe. |
| 8 $\frac{3}{4}$ | .. | Roorkee | C. Bovill. |
| 8 $\frac{5}{8}$ | .. | Meerut | Capt. S. H. Charrington. |

— Owner's measurements.

The **BUSH-PIG** (*Potamochoerus chæropotamus*).

Bosch-vark, Cape Dutch.

Ingulubi, Swazi and Zulu.

The bush-pigs, or river-hogs, of Africa and Madagascar form a peculiar group of swine characterised by having only 42, in place of 44, teeth, small tusks, and the presence in old boars of two pairs of ridge-like prominences on the sides of the face, the lower one being on the sheath of the tusk. The ears are surmounted with tufts of long hair. The various species are best distinguished by the characters of their skulls, colour forming an uncertain guide. The Cape bush-pig, or bosch-vark, in which the upper prominences on the skulls of old boars are convex and raised above the line of the nose, is generally grey, although scarcely any two specimens exhibit the same colours; some being a brownish black variegated with white, and others almost entirely light reddish brown or rufous, without any white markings. In British Central Africa they are invariably reddish, and form a distinct race, *P. c. nyasæ*. Height at shoulder about 31 inches; weight, 35 lbs. Lower tusks average 6 to 7 inches long.

Distribution.—South and South-East Africa.

| Length. | | Exposed from gum. | Locality. | Owner. |
|-------------------------|--------|----------------------|--|-------------------------|
| Upper. | Lower. | | | |
| 3½ | 6½ | ... | N.E. Rhodesia | Hon. Walter Rothschild. |
| ... | ... | 4½ | P.E. Africa | F. Vaughan Kirby. |
| Height at shoulder. | | Weight. | | |
| 23¼ | | 35 lbs. | Shiré River, British Central Africa | Dr. Percy Rendall. |
| — Owner's measurements. | | | | |

The **RED RIVER-HOG** (*Potamochoerus porcus*).

In this species the prominences on the skulls of adult boars are flat-topped, and do not reach above the line of the nose; the colour is always some shade of rufous, either shining brownish red with a tinge of yellow, or dark reddish yellow with black on the forehead, ears, and limbs, and the mane of the back, part of the margins of the ears, the tips of the long tufts of hairs with which they are surmounted, and streaks above and below the eyes white.

Distribution.—West Africa.



Head of Forest-Hog. Shot by Lieut.-Col. J. W. Yardley.

The FOREST-HOG (*Hylochoerus meinertzhageni*).

A huge black pig serving in some respects to connect the bush-pigs with the wart-hogs, although markedly distinct from both. Height at shoulder, 26 ins.; weight, 116 lbs. clean (Major P. H. G. Powell-Cotton).

Distribution.—Kenia and the Nandi Forest, but represented by an allied species or race in the Eastern Cameruns, and a third in the Ituri Forest.

Upper Tusks.

| Total Length. | Protruding from gum. | Circumference. | Locality. | Owner. |
|---------------------------------------|----------------------|----------------|--------------------|----------------------------|
| $10\frac{1}{2}$ } $9\frac{3}{4}$ } | ... | $4\frac{5}{8}$ | Nandi Forest . . . | Hon. Walter Rothschild. |
| . | $8\frac{1}{2}$ | $4\frac{5}{8}$ | Mount Kenya . . . | Lieut.-Col. J. W. Yardley. |
| . | $7\frac{1}{2}$ | $4\frac{1}{4}$ | Do. . . . | E. B. Horne. |

Lower Tusks.

| | | | | |
|--------------------------------------|----------------|----------------|--------------------|----------------------------|
| $9\frac{1}{2}$ } $8\frac{1}{2}$ } | ... | $2\frac{3}{4}$ | Nandi Forest . . . | Hon. Walter Rothschild. |
| ... | $5\frac{3}{4}$ | 3 | Mount Kenya . . . | Lieut.-Col. J. W. Yardley. |
| ... | $3\frac{3}{4}$ | $2\frac{1}{4}$ | Do. . . . | E. B. Horne. |



Tusks of Wart-Hog in American National Collection.

The WART-HOG (*Phacochoerus æthiopicus*).

Bango or *Nguruwi*, Swahili.

Haluf, Sudani.

Ikulubi, Basuto.

Indaigazana, Swazi and Zulu.

Karkari, Somali.

Ngolobwi, Barotsi and Ngami.

Njiri or *Injiri*, Chilala and Chibisa.

Vlak-vark, Boer.

Darunga, Hausa.

Ngron, M'Kua.

Shaukoli, Chila.

For downright ugliness the African wart-hog is hard to beat, and as it is well armed and possesses a bad temper, it is in all respects an undesirable acquaintance. The name is derived from the presence of three pairs of wart-like protuberances on the sides of the face between the eyes and the tusks; the head itself being characterised by the disproportionate length and flatness of the face. Unlike typical pigs, the stout upper tusks are longer than the lower pair; the inferior surfaces of their basal halves being worn to smooth facets by the points of the latter. Another peculiarity of the upper tusks is that they have no enamel, except at the extreme tips, which are soon worn off by use. The last molar teeth of each jaw, which, together with the tusks, are often the only teeth remaining in very old animals, are large and tall-crowned, consisting of a number of closely-packed cylindrical columns of enamel, which, when worn, present a characteristic pattern.

This type of tooth is quite unlike that of ordinary pigs, in which the last molars are low-crowned and simple. Except along the neck and back, where it carries a mane of bristly hair, the skin is nearly naked ; and the young differ from those of ordinary pigs in being neither striped nor spotted. Height at shoulder, 30 inches. Weight (Capt. R. Meinertzhagen), 210 lbs.

Distribution.—The wart-hog is typically an inhabitant of South and South-East Africa. Pigs of the same genus extend, however, right through East and Central Africa to Abyssinia ; those from the latter country having been described as a distinct species, under the name of *P. africanus*, although the northern animal is only a local race of the southern species. Wart-hogs, possibly from their habit of going to ground when pursued, are but seldom hunted with the spear ; “ pig-sticking ” being, in fact, a sport practically unknown in Africa. The lower tusks seldom exceed 6 inches on the front curve.

Upper Tusks.

| Length on outside curve. | Length exposed from gum. | Locality. | Owner. |
|-----------------------------|-----------------------------|----------------------------|-------------------------------|
| 27 } 26 } | ... | Annesley Bay . . . | Capt. Ralph Berners, R.N. |
| 22½ | 21 | Uganda . . . | Rev. A. B. Fisher. |
| 22 | ... | ? | J. N. Coute. |
| 20 | 17¾ | South Africa . . . | American National Collection. |
| . | 16 | Do. . . . | W. A. Simpson Hinchliffe. |
| . | 15½ | Do. . . . | Sir Edmund G. Loder, Bart. |
| ... | 15½ | British Central Africa . . | A. J. Swann. |
| ... | 14½ | N.E. Rhodesia . . . | H. Cookson. |
| 16½ | 12½ | East Africa . . . | Capt. the Hon. O. H. Stanley. |
| 16½ | ... | Do. . . . | Capt. V. C. de Crespigny. |
| 15½ | 15½ | N. Nigeria . . . | Capt. C. F. Watson. |
| 15½ | ... | East Africa . . . | A. J. A. Douglas. |
| 15¼ | 13 | Somaliland . . . | Capt. K. L. W. Mackenzie. |
| 15½ | ... | N.E. Rhodesia . . . | F. H. Melland. |
| .. | 13½ | East Africa . . . | Mrs. J. E. R. Oldfield. |
| 15 | 13½ | British Central Africa . . | R. H. Storey. |
| 14¾ | ... | Do. . . . | John Yule. |
| 14¾ | 12 | Do. . . . | Dr. J. E. S. Old. |
| 14 | 11¼ | Sudan . . . | Capt. A. C. Jeffcoat. |
| 13½ | 11½ | N. Nigeria . . . | Capt. W. H. Wilkin. |
| 131½ | ... | Somaliland . . . | Capt. B. R. M. Glossop. |
| . | 13½ | East Africa . . . | Walter Jones. |
| . | 13 | South-East Africa . . . | F. C. Selous. |

— Owner's measurements.

| Length on outside curve. | Length exposed from gum. | Locality. | Owner. |
|-----------------------------|-----------------------------|-----------------------|-------------------------------|
| ... | 12 $\frac{1}{2}$ | East Africa . . . | Major H. W. Stevens. |
| .. | 12 $\frac{1}{2}$ | Do. | Percy C. Madeira. |
| .. | 12 | N.W. Rhodesia . . . | J. Ripley. |
| ... | 11 $\frac{1}{2}$ | Angola | W. C. Neilson. |
| .. | 11 $\frac{1}{2}$ | East Africa | Gorham Brooks. |
| .. | 11 $\frac{1}{2}$ | Do. | B. Dominick. |
| ... | 11 | Do. | F. Santos Saurez. |
| ... | 10 $\frac{3}{4}$ | Do. | Major H. B. Dalgety. |
| ... | 10 $\frac{1}{2}$ | Do. | Duke of Peneranda. |
| ... | 10 $\frac{1}{2}$ | Somaliland | R. A. M'Clymont. |
| ... | 10 $\frac{1}{2}$ | Do. | H. Hyde Baker. |
| ... | 10 $\frac{1}{2}$ | East Africa | W. A. Baird. |
| . | 9 $\frac{1}{2}$ | Uganda | Major P. H. G. Powell-Cotton. |
| | 9 | Sudan | Marquis Pizzardi. |

Lower Tusks.

| Length on outside curve. | Length exposed from gum. | Locality. | Owner. |
|-----------------------------|-----------------------------|----------------------|---------------------------|
| 11 $\frac{1}{2}$ | ... | Somaliland | Capt. K. L. W. Mackenzie. |
| -9 $\frac{1}{2}$ | ... | Do. | J. D. Inverarity. |

- Owner's measurements.



Head of Wart-Hog.



Head of Babirusa.

The BABIRUSA (*Babirusa alfurus*).

Pig-deer (to translate the Malay name) are not the least notable of several remarkable animals restricted to Celebes and Boru ; the peculiar form and position of the upper tusks of the boars rendering them almost comparable to horns. Unlike other pigs, in which they curve upwards from the sides of the lips, the upper tusks grow from the centre of the muzzle, piercing through the skin, and as they are not worn by the lower pair, attain extraordinary dimensions. Both pairs are quite devoid of enamel ; the lower ones growing from the sides of the jaw in the ordinary manner. The cheek-teeth are somewhat less numerous than in ordinary pigs. In other parts of their organisation babirusas are, however, very like the latter, although the nearly naked skin of *B. alfurus* is of a coarse and rugged nature, being almost comparable to the bark of a tree. The height at the middle of the back, the highest point of the animal, is about 42 inches. Unlike the rest of its tribe, the female babirusa produces only a pair of young at a birth, which are of the same uniformly slaty hue as their parent. Babirusa are confined to the islands of Celebes and Boru, where they afford good sport to the natives, who drive them into nets and then spear them. The Boru species (*B. orientalis*) is clothed with greyish hair, and also differ in the character of the skull and tusks from the Celebes *B. alfurus*.

Dr. Guillemard, in the *Cruise of the "Marchesa,"* recorded the following weights and dimensions:—

Weight, male, 128 lbs. ; female, 85 lbs.

Height at shoulder, $27\frac{1}{2}$ ins. ; female, $25\frac{1}{2}$ ins.

Tusks.

| Upper. | Length. | Lower. | Owner. |
|-------------------|---------|------------------|--------------------------|
| -17 | | ... | H. Van Son. |
| 16 $\frac{3}{4}$ | | 13 $\frac{1}{2}$ | Rowland Ward. |
| -14 $\frac{1}{2}$ | | ... | Dr. F. H. H. Guillemard. |
| -13 $\frac{1}{4}$ | | 15 | Imperial Museum, Vienna. |
| -11 | | 8 $\frac{3}{4}$ | Dr. Albert von Stephani. |

- Owner's measurements.



Record Horn of Great Indian Rhinoceros. Shot by the late T. Briscoe.

The GREAT INDIAN RHINOCEROS (*Rhinoceros unicornis*).

In addition to being the giant among its Asiatic kindred and possessing only a single horn, this species is specially characterised by the form of the folds in its hide, and the large tubercles on the fore- and hind-quarters, which look as though the skin had been fastened to the body by means of rivets. Folds before and behind the shoulder mark off one large triangular shield on each side, while another fold before each thigh separates a large rump-shield; the saddle-shaped body-shield being defined by the fold behind the shoulder and the one in front of the thigh, both of which extend across the back. Very characteristic, too, are the great folds which form heavy rings of skin round the neck. Although the tubercles are largest on the fore- and hind-quarters, they also occur on other parts of the body. Height at shoulder from 5 feet 8 inches to over 6 feet; girth, 105 inches. The late Dr. T. C. Jerdon mentioned 24 inches as the length of a fine horn.



Horn of Great Indian Rhinoceros.

THE MAHARAJA OF COOCH BEHAR'S SPECIMENS

| | | | |
|---------------------------|---------------------------|----------------------|-------------------------|
| Height at shoulder . . . | 6 ft. $4\frac{1}{4}$ ins. | 6 ft. 1 in. | 6 ft. $\frac{1}{2}$ in. |
| Total length . . . | 14 ft. 1 in. | 13 ft. 2 ins. | 13 ft. 10 ins. |
| Girth behind shoulder . . | 119 ins. | 112 ins. | |
| Horn | $16\frac{1}{4}$ ins. | $13\frac{7}{8}$ ins. | |

Distribution.—The Assam plain and the Terailand of Nepal and some of the adjacent territories. Formerly this rhinoceros was found over the greater part of the Indian peninsula, as attested by fossil remains. There is evidence of the occurrence of a more or less nearly related rhinoceros, apparently with two horns, in the Singpu district of Upper Burma. Weight of living animal, 1010 lbs. (*New York Zool. Soc.*).

| Length on front curve. | Circumference. | Weight. | Locality. | Owner. |
|------------------------|-----------------|---------|--------------------|---------------------------------------|
| 24 | $24\frac{3}{4}$ | ... | Assam . . . | British Museum (the late T. Briscoe). |
| $21\frac{1}{2}$ | $24\frac{3}{4}$ | ... | Nepal . . . | Lord Curzon of Kedleston. |
| $19\frac{1}{2}$ | $22\frac{3}{8}$ | ... | India . . . | Ipswich Museum. |
| ♀ 18 | 16 | ... | Assam . . . | M. H. Logan. |
| $16\frac{3}{4}$ | ... | ... | Belsire, Assam . . | W. C. Sherwill. |
| ♀ $16\frac{1}{4}$ | ... | ... | Cooch Behar . . . | H.H. the Maharaja of Cooch Behar. |

— Owner's measurements.

| Length on front curve. | Circumference. | Weight. | Locality. | Owner. |
|------------------------|----------------|---------|-------------------|-------------------------------|
| ♀ 16 | ... | 3½ lbs. | Nowgong, Assam | L. Fabre Tonnerre. |
| 15 | 22½ | ... | Nepal . . . | Dr. T. G. Longstaff. |
| 14½ | 21 | ... | Assam . . . | Dr. W. P. Y. Bainbrigge. |
| ♀ 14 | 22½ | 4½ lbs. | Nowgong, Assam | L. Fabre Tonnerre. |
| -13½ | ... | ... | Cooch Behar . . . | H.H. Maharaja of Cooch Behar. |
| ¹ 13 | ... | ... | Do. . . . | Do. |
| 13 | 20 | ... | Nepal . . . | Capt. M. L. Pears. |
| 13 | 20½ | ... | Assam . . . | G. A. Dolby. |
| 13 | 20½ | ... | Do. . . . | W. A. Doxat. |
| 12½ | 23 | ... | Do. . . . | H. B. Firman. |
| 12½ | 21½ | ... | Do. . . . | H. C. Holland. |
| -12½ | 15½ | ... | Cooch Behar . . . | Col. J. J. Harrison. |
| 12½ | 21 | ... | ? . . . | J. W. Grieve. |
| 12 | 21½ | ... | Cooch Behar . . . | A. Ezra. |

- Owner's measurements.

¹ Height at shoulder, 6 ft. 6 ins.

The JAVAN RHINOCEROS (*Rhinoceros sondaicus*).

A less gigantic and smaller-headed species than the last, with the skin marked by a kind of mosaic pattern, and the fold in front of the shoulder continued right across the body like the two hindmost folds. The neck also lacks the large ring-like masses of folded skin. Horn never very large, and generally almost or completely wanting in the female. A female has been measured which stood 5½ feet at the shoulder, and it is probable that the male is not much inferior in height to the Indian species, although of lighter build.

Distribution.—The Sanderbans and other parts of Eastern Bengal, to the Terai, Sikhim, Assam, and thence through Burma and the Malay Peninsula to Sumatra, Java, and Borneo.

| Length on front curve. | Circumference. | Locality. | Owner. |
|------------------------|----------------|--------------|-----------------|
| 10½ | 19½ | Java | British Museum. |
| 10½ | 19½ | Do. . . . | H. Van Son. |
| 8½ | 20 | Do. . . . | A. S. Campbell. |



Horn of Sumatran Rhinoceros. Shot by G. F. W. Curtis.

The SUMATRAN RHINOCEROS (*Rhinoceros* [*Ceratorhinus*]¹ *sumatrensis*).

The smallest of the Asiatic rhinoceroses, and the only one with two horns; differing, however, from the African members of the genus by the presence of folds in the skin and of teeth in the front of the jaws. Only the fold behind the shoulders is continued across the back, and the brown or black skin is rough, granular, and more or less hairy. Height at shoulder from about 4 feet to 4½ feet; weight about 2000 lbs.

Distribution.—From Assam (where the species is very rare) to Siam, the Malay Peninsula, Sumatra, and Borneo. The Assam animal is a distinct local race (*R. sumatrensis lasiotis*).

| Length on outside curve. | | Circumference. | | Locality. | Owner. |
|-----------------------------|-------|----------------|-------|-----------------|--------------------------|
| Front. | Rear. | Front. | Rear. | | |
| 32½ | ... | 17¾ | ... | ? | British Museum. |
| 27½ | ... | 17¾ | ... | ? | Do. |
| 15 | 7½ | 17½ | 17 | Malay Peninsula | C. B. Smales. |
| 11 | 3½ | 15¼ | 11¼ | ? | Sir T. S. Tancred, Bart. |
| 6¾ | 3½ | 12¾ | 12½ | Burma | The late C. W. A. Bruce. |

¹ An earlier name is *Dicerorhinus*, but this is too like *Diceros*, the subgeneric (or generic) name of the African rhinoceroses, to be employed.



Mr. S. L. Hinde's Horns of Black Rhinoceros.

The **BLACK RHINOCEROS** (*Rhinoceros* [*Diceros*] *bicornis*).

| | |
|------------------------------------|--------------------------------------|
| <i>Aurarissi</i> , Abyssinian. | <i>Megi</i> , M'Kua. |
| <i>Abu Gesu-Khartyl</i> , Sudani. | <i>Sipejana</i> , Swazi and Matonga. |
| <i>Chipamberi</i> , Lower Zambesi. | <i>Upejana</i> , Matabili and Zulu. |
| <i>Chipénberi</i> , Chilala. | <i>Upelepi</i> , Basuto. |
| <i>Fava</i> , Swahili. | <i>Wärtses</i> , Galla. |
| <i>Gurhu</i> , Danakil. | <i>Wil</i> , Somali. |
| <i>Muin</i> , Masai. | <i>Zwart Rhinaster</i> , Boer. |
| | <i>Shempola</i> , Chila. |

The African rhinoceroses are two-horned animals, readily distinguished from their Asiatic relatives by the absence of the folds of skin on the body which form such a characteristic feature of the latter, and also by the lack of front teeth in both the upper and lower jaws. The hide, too, is almost completely naked, although there are some bristly hairs on the margins of the ears and the tip of the tail.

Perhaps the most distinctive external feature of the black rhinoceros, as the present species is commonly called, is to be found in the prehensile tip to the upper lip, which is rounded and not very wide in front. Other points of distinction are, however, shown by the form of the horns and ears and the position of the eyes; while in bodily size

♂ Living animal, 602 lbs. (*New York Zool. Soc.*).
 ♀ " " 1080 " " "

this animal is also considerably inferior to the next. The black rhinoceros is likewise well characterised by the comparative shortness of its skull, and the form and structure of the cheek teeth, which are adapted for a diet of twigs and leaves. Average height at shoulder, 5 feet. Weight (Capt. R. Meinertzhagen), 1 ton 1 cwt. 1 qr. 8 lbs.

Black rhinoceroses sometimes have more than the usual two horns. Gordon Cumming, for instance, records having killed a three-horned



Head of Black Rhinoceros.

specimen; and Lieut.-Col. E. G. Harrison, writing in the *Field* of December 25, 1897, gives the following measurements of a five-horned rhinoceros shot by himself in East Africa:—

First Horn.—Counting from snout, measurement $14\frac{3}{4}$ ins.; is a normal front horn curving backwards.

Second Horn.— $15\frac{1}{4}$ ins., curving forwards instead of backwards or being straight, as is usual, and leaning considerably over to the off-side.

Third Horn.— $11\frac{1}{4}$ ins. long and $5\frac{1}{2}$ ins. wide half-way between base and apex; is flat and perpendicular, and, though a distinct horn, grows out of the off-side of the base of No. 2.

Fourth Horn.—Is a stumpy, abortive horn, 9 ins. long, growing

partly from the base of No. 3, but quite separate and inclining slightly backwards.

Fifth Horn.—A distinct horn, $9\frac{3}{4}$ ins. long, with its own base separated about 3 ins. from No. 4.

Distribution.—From Abyssinia and Somaliland through East and Central Africa, in suitable localities, to the Cape. Now rare to the south of the Zambesi, but probably more abundant in the districts between the interior of Somaliland and Lake Rudolf than anywhere else. Although more alert and active than the white rhinoceros, and thus a more dangerous animal, this species is by no means difficult to kill with modern weapons; and in the old days hunters frequently shot half-a-dozen in a single evening as they came to drink at a pool. In spite of its wide distribution, it has not been found possible to split up the species into local races; although this may perhaps be due to the want of sufficient specimens for comparison. The so-called *Rhinoceros holmwoodi* is a variety of this species.

| Length on outside curve. | | Circumference. | | Locality. | Owner. |
|-----------------------------|---------------|----------------|---------------|-----------------------------------|---|
| Front horn. | Rear horn. | Front horn. | Rear horn. | | |
| 53½ | ... | 18½ | ... | East Africa . . . | Dr. C. H. Orman. |
| 47 | 22½ | 22 | 20 | Do. . . . | S. L. Hinde. |
| -44½ | ... | ... | ... | ? | Imperial Museum, Vienna. |
| 44 | ... | ... | ... | ? | The late F. Holmwood. |
| 43 | ... | 21½ | ... | ? | The late A. Beit. |
| 41½ | 10 | 20½ | 16½ | Zululand . . . | The late Lieut.-Col. the Hon. W. Coke. |
| -41½ | ... | 22½ | ... | Orange River Colony . | Major - Gen. Sir William Crossman. |
| -41 | ... | ... | ... | ? | Carl Hagenbeck. |
| 41 | ... | ... | ... | East Africa . . . | The late F. Holmwood. |
| -40 | ... | 22 | ... | Do. . . . | Berlin Museum. |
| 40 | 14¾ | 18½ | 20½ | Mt. Kenia, East Central Africa | The late A. H. Neumann. |
| -39½ | ... | 21½ | ... | South Africa . . . | J. Lamont. |
| 38¾ | ... | 21 | ... | ? | Hon. Walter Rothschild. |
| 38½ | ... | 19 | ... | Masailand . . . | Sir John Kirk. |
| -38 | 11 | 24 | 21¾ | South Africa . . . | Earl of Dartmouth. |
| -37 | 12½ | 20½ | 17½ | Uganda . . . | Sir Edmund G. Loder, Bart. |
| -36 | ... | ... | ... | East Africa . . . | Sir Bartle Frere, Bart. |
| ♀ 35½ | ... | 17½ | ... | Do. . . . | Capt. G. H. Riddell. |

— Owner's measurements.

RECORDS OF BIG GAME

| Length on outside curve. | | Circumference. | | Locality. | Owner. |
|--------------------------|------------|----------------|------------|---------------------------------|---|
| Front horn. | Rear horn. | Front horn. | Rear horn. | | |
| -35½ | ... | 18 | ... | ? | H. Murray. |
| 35 | 11¼ | 21 | 20 | East Africa | Capt. L. W. Sadlier-Jackson. |
| 33¾ | 16 | 20 | 19½ | Do. | T. P. Kempson. |
| ♀ 33½ | ... | 17½ | ... | Matabililand | W. Van Ness. |
| 33 | 22 | 19½ | 20½ | East Africa | A. J. A. Douglas. |
| -32½ | 21 | 19 | 15¾ | Portuguese Northern Zambesia | F. Vaughan Kirby. |
| 32½ | 16 | 22 | 19 | Athi Plains, East Africa | Capt. R. Meinertzhagen. |
| -32 | 11¾ | 19¾ | 19½ | Do. | Count Scheibler. |
| 31 | ... | 18 | ... | East Africa | R. P. Carroll. |
| ♀ 31 | 13½ | 18¼ | 18 | Do. | W. Neilson. |
| 31 | 19½ | 16 | 16¾ | Do. | H. C. V. Hunter. |
| -30¾ | 8¾ | 18½ | 16¾ | German East Africa | O. Neumann. |
| 130 | 21½ | 22½ | 23½ | East Africa | Lieut.-Col. the Hon. A. Greville. |
| 29½ | ... | 18¾ | ... | Somaliland | Julius Jeppe. |
| 29½ | 14½ | ... | ... | Do. | A. H. Straker. |
| 29 | 29½ | 17¼ | 18 | South Africa | R. B. Keeling. |
| 29 | ... | 19 | ... | East Africa | S. H. Christy. |
| 28½ | 11¾ | 20¼ | 20½ | S.E. Africa | Dr. Sauer. |
| 28¼ | 8¾ | 18¾ | ... | South Africa | F. C. Selous. |
| 28 | ... | 23¼ | ... | East Africa | F. Baden-Powell. |
| ♀ 27¾ | 22 | 19¾ | 20¼ | Do. | The Master of Belhaven. |
| 27½ | 17¾ | 21 | 18 | Do. | H. Hyde Baker. |
| 27¼ | 10 | 21 | 17 | Masailand | The late Rear-Admiral R. A. J. Montgomery, R.N. |
| 27 | 12½ | 24¾ | 20 | East Africa | Abel Chapman. |
| 27 | ... | 20½ | ... | Do. | E. Gedge. |
| 27 | 16½ | 17¾ | 17½ | Do. | Sir Robert Harvey, Bart. |
| 27 | 12 | ... | ... | Do. | Sir John Willoughby, Bart. |
| 26¾ | 20½ | 21¾ | 19 | Do. | W. N. McMillan. |
| 26½ | 10½ | 19½ | 15 | Do. | Henry Charrington. |
| 26½ | 25½ | 18½ | 19 | Do. | H. Sampson. |
| 26½ | 11 | 24 | 20 | Do. | Col. A. Colville. |
| 26½ | 8 | 23½ | 15 | Do. | E. B. Horne. |
| 26 | 13 | 20¼ | 23½ | Do. | C. Craig. |
| 26 | 9 | 18 | 17 | Do. | Lieut.-Col. M. Tighe. |
| 26 | 10 | 20½ | 19 | Do. | F. W. Belt. |
| 26 | 13½ | 18½ | 17 | Do. | Stephenson R. Clarke. |
| 26 | 12¾ | 17½ | 17¾ | Do. | H. S. L. Scott. |

- Owner's measurements.

1 Weight front horn, 13¾ lbs. Weight rear horn, 15 lbs.

| Length on outside curve. | | Circumference. | | Locality. | Owner. |
|-----------------------------|------------------|------------------|------------------|----------------|--|
| Front horn. | Rear horn. | Front horn. | Rear horn. | | |
| 26 | 11 $\frac{3}{4}$ | 23 $\frac{3}{4}$ | 22 | East Africa | H. C. Allfrey. |
| 25 $\frac{1}{2}$ | 10 $\frac{1}{2}$ | 20 $\frac{3}{4}$ | 16 $\frac{1}{2}$ | Nigeria | Capt. J. G. Browne. |
| ♂ 24 $\frac{1}{2}$ | 14 $\frac{1}{2}$ | 17 $\frac{3}{4}$ | 17 $\frac{3}{4}$ | East Africa | Childs Frick. |
| ♀ 23 $\frac{1}{2}$ | 9 $\frac{1}{2}$ | 14 $\frac{1}{2}$ | 12 $\frac{1}{2}$ | N.E. Rhodesia | H. S. Thornicroft. |
| 23 $\frac{3}{4}$ | 8 $\frac{1}{2}$ | 19 $\frac{3}{8}$ | 20 $\frac{1}{2}$ | Do. | Major P. H. G. Powell-Cotton. |
| 22 $\frac{1}{2}$ | 14 $\frac{1}{2}$ | 17 | 16 $\frac{1}{2}$ | Somaliland | Abe Bailey. |
| 22 $\frac{1}{4}$ | 10 | 22 $\frac{3}{4}$ | 19 | Do. | The late Sir H. D. Tichborne, Bart. |
| 22 | 6 $\frac{3}{4}$ | 17 $\frac{1}{4}$ | 16 | Do. | Col. H. D. Olivier. |
| 21 $\frac{3}{4}$ | 11 $\frac{3}{8}$ | 19 | 19 | Do. | J. Kenneth Foster. |
| 21 $\frac{3}{8}$ | 17 | 14 | 16 | Abyssinia | British Museum. |
| 21 | 9 $\frac{1}{2}$ | 17 $\frac{1}{2}$ | 15 $\frac{1}{2}$ | Somaliland | F. Gillett. |
| 20 $\frac{1}{2}$ | 9 $\frac{1}{4}$ | 21 $\frac{3}{4}$ | 19 $\frac{7}{8}$ | Do. | Count E. Hoyos. |
| 20 $\frac{1}{4}$ | ... | 19 $\frac{1}{4}$ | ... | Lake Chad | Capt. G. W. Moran. |
| 20 | 11 $\frac{1}{2}$ | 21 $\frac{1}{2}$ | 18 | Somaliland | J. Byng Paget. |
| 20 | 6 $\frac{3}{4}$ | 20 $\frac{1}{2}$ | 19 $\frac{1}{2}$ | Do. | Col. H. G. C. Swayne. |
| 20 | 8 $\frac{1}{2}$ | 23 $\frac{1}{2}$ | 21 $\frac{7}{8}$ | Do. | Count E. Hoyos. |
| 19 $\frac{1}{2}$ | 9 $\frac{1}{4}$ | 18 | 14 | Nigeria | Capt. H. V. Venables Kyrke. |
| 14 $\frac{1}{4}$ | 9 | 17 $\frac{1}{4}$ | 14 | Benue, Nigeria | Capt. E. J. Wolsley. |
| 13 | 6 $\frac{3}{4}$ | 17 $\frac{1}{4}$ | 16 $\frac{1}{2}$ | Abyssinia | O. Neumann. |

- Owner's measurements.



Head of White Rhinoceros.



Front Horns of White Rhinoceros.

From specimens in the Collection of the late Roualeyn Gordon Cumming, in the possession of Col. W. Gordon Cumming.

The **WHITE** or **BURCHELL'S RHINOCEROS** (*Rhinoceros* [*Diceros*] *simus*).

Khartyt, Sudani.

Vit Rhinaster, Cape Dutch.

Next to the Indian elephant this is the largest mammal that has trodden the earth in modern times. Its huge bulk, the bluntly truncate muzzle, which has no prehensile tip, the great length of the skull, and the enormous front horn, with its expanded base, form the most striking external characteristics of this species. The cheek-teeth are of a different type of structure from those of the preceding species, being, in fact, adapted for chewing grass. In walking, the animal carries its head low, so that in examples in which the front horn bends forward, its tip becomes worn by being pushed along the ground. It is somewhat difficult to surmise the reason for the application of the name white rhinoceros to this species.

Distribution.—South and South-East Africa, in suitable localities, as far north as the Zambesi; and again in Central Africa at Lado, on the equator. Exterminated early in the last century to the south of the Orange River; and now represented in South Africa at the most by a few survivors in North-East Mashonaland, and possibly by others in the reedy swamps at the junction of the Black and White Umvolosi rivers. Between the Zambesi and Orange rivers the species was abundant about half a century ago; Andersson alone having killed sixty in the course of a few months. Its existence in Central Equatorial Africa was indicated by Sir Samuel Baker on the evidence of horns, and subsequently made certain in the neighbourhood of Lado by Major Gibbons. The northern race (*R. s. cottoni*) is distinguished by the proportions of the fore part of the skull, and apparently by the sculpture of the skin.

| Length on outside curve. | | Circumference. | | Locality. | Owner. |
|-----------------------------|---------------|---------------------------|------------------|------------------|-------------------------|
| Front horn. | Rear horn. | Front horn. | Rear horn. | | |
| -62 $\frac{1}{2}$ | ... | 22 $\frac{1}{2}$ | ... | South Africa . . | Col. W. Gordon Cumming. |
| 56 $\frac{1}{2}$ | ... | 23 $\frac{1}{2}$ about | ... | Do. . . | British Museum. |
| -52 $\frac{1}{2}$ | ... | 21 $\frac{1}{2}$ | ... | Do. . . | Col. W. Gordon Cumming. |
| 51 | ... | 25 | ... | Do. . . | Lieut.-Col. J. Duke. |
| 44 | ... | 20 | ... | Do. . . | British Museum. |
| 43 $\frac{3}{4}$ | ... | 23 $\frac{3}{4}$ | ... | Do. . . | The late A. Beit. |
| 42 $\frac{3}{4}$ | ... | 25 $\frac{5}{8}$ | ... | Limpopo . . | The late W. C. Oswell. |
| 41 | 11 | 26 | 22 $\frac{1}{4}$ | Lado . . | Capt. P. M. Dove. |
| -41 | ... | ... | ... | South Africa . . | J. W. Fitzherbert. |

— Owner's measurements.

RECORDS OF BIG GAME

| Length on outside curve. | | Circumference. | | Locality. | Owner. |
|---------------------------------|------------------|------------------|------------------|------------------------------|--|
| Front horn. | Rear horn. | Front horn. | Rear horn. | | |
| 40 $\frac{1}{4}$ | ... | 29 $\frac{3}{4}$ | ... | South Africa . . | Sir Edmund G. Loder, Bart. |
| 40 $\frac{1}{2}$ | ... | 20 $\frac{3}{4}$ | ... | Do. . . | Hon. Walter Rothschild. |
| -40 $\frac{1}{2}$ | ... | 22 $\frac{1}{2}$ | ... | Do. . . | Sir Edmund G. Loder, Bart. |
| 40 $\frac{1}{4}$ | ... | 25 | ... | Bahr-el-Ghazal . . | Capt. F. G. Poole. |
| 40 | ... | 15 $\frac{3}{4}$ | ... | South Africa . . | British Museum. |
| 39 $\frac{1}{8}$ | ... | 23 | ... | ? | Lord Delamere. |
| ♀ 38 $\frac{5}{8}$ | ... | 24 $\frac{1}{2}$ | ... | ? | The late W. C. Oswell. |
| 38 $\frac{1}{4}$ | ... | 22 $\frac{1}{4}$ | ... | ? | J. B. Taylor. |
| 37 $\frac{3}{8}$ | 17 $\frac{7}{8}$ | 27 $\frac{1}{8}$ | ... | Mashonaland . . | F. C. Selous. |
| 37 $\frac{1}{4}$ | ... | 24 | 7 $\frac{1}{2}$ | South Africa . . | British Museum. |
| -36 $\frac{3}{4}$ | ... | 20 $\frac{1}{2}$ | ... | ? | Berlin Museum. |
| 36 $\frac{1}{4}$ | ... | 19 $\frac{1}{4}$ | ... | Sudan . . | Brig.-Gen. B. T. Mahon. |
| 36 | ... | 28 $\frac{1}{2}$ | ... | Mashonaland . . | C. D. Rudd. |
| ¹ 35 $\frac{1}{2}$ | 7 $\frac{5}{8}$ | 26 | 21 | Mount Domo, Ma- shonaland | South African Museum (Cecil Rhodes). |
| 35 | 13 $\frac{1}{2}$ | 21 $\frac{1}{2}$ | 20 $\frac{1}{2}$ | Lado . . | H. Twyford. |
| ♀ 35 | 10 $\frac{1}{4}$ | 22 $\frac{1}{4}$ | 20 $\frac{5}{8}$ | Do. . . | Major P. H. G. Powell-Cotton. |
| 34 $\frac{1}{4}$ | ... | 18 $\frac{1}{4}$ | ... | ? | H. Showell. |
| 33 $\frac{1}{4}$ | 12 | 25 $\frac{1}{2}$ | 20 | Sudan . . | The late Prince Paul Demidoff. |
| -33 $\frac{1}{2}$ | ... | 23 | ... | ? | Abe Bailey. |
| 33 | 13 $\frac{1}{8}$ | 23 $\frac{1}{4}$ | ... | Mashonaland . . | F. C. Selous. |
| 32 $\frac{1}{2}$ | 12 $\frac{1}{2}$ | 21 $\frac{1}{2}$ | 19 | Near Lado . . | Col. J. J. Harrison. |
| 32 | 13 | 27 $\frac{1}{4}$ | 25 $\frac{1}{2}$ | Do. . . | Capt. the Hon. M. P. Macnaghten. |
| 32 | 7 | 21 | 16 $\frac{1}{4}$ | Do. . . | Douglas M'Douall. |
| 31 $\frac{1}{8}$ | ... | 19 $\frac{1}{2}$ | ... | ? | Mr. Justice Hopley. |
| 31 | ... | 24 | ... | Zululand . . | The late Lieut.-Col. the Hon. W. Coke. |
| 31 | 12 | 27 | 27 | Lado . . | British Museum (Major P. H. G. Powell-Cotton). |
| 31 | ... | 22 | ... | Mashonaland . . | J. G. Griffiths. |
| 30 $\frac{3}{4}$ | ... | 25 $\frac{3}{4}$ | ... | White Nile . . | Major C. J. Hawker. |
| -30 $\frac{1}{4}$ | ... | 25 $\frac{1}{4}$ | ... | South Africa . . | Col. H. B. H. Blundell. |
| ¹ ♀ 29 $\frac{3}{4}$ | 5 $\frac{1}{2}$ | 23 | 20 $\frac{1}{2}$ | Zululand . . | Pretoria Museum (Julius Jeppe). |
| 29 | 10 | 25 | 23 | White Nile . . | Major R. M. Sanders. |
| 27 $\frac{1}{4}$ | ... | 28 $\frac{1}{4}$ | ... | Sudan . . | Hon. Walter Rothschild. |
| 26 | 15 $\frac{1}{2}$ | 26 | 19 $\frac{1}{4}$ | Do. . . | Kenneth Crossley. |
| ¹ 22 $\frac{1}{2}$ | 7 $\frac{1}{2}$ | 26 $\frac{1}{4}$ | ... | Mashonaland . . | Hon. Walter Rothschild. |
| ¹ 20 $\frac{3}{4}$ | 7 | 28 $\frac{3}{4}$ | ... | Do. . . | British Museum. |
| ¹ 20 | 6 | 25 $\frac{1}{2}$ | 18 $\frac{1}{2}$ | Zululand . . | H. R. H. the Duc d'Orléans. |

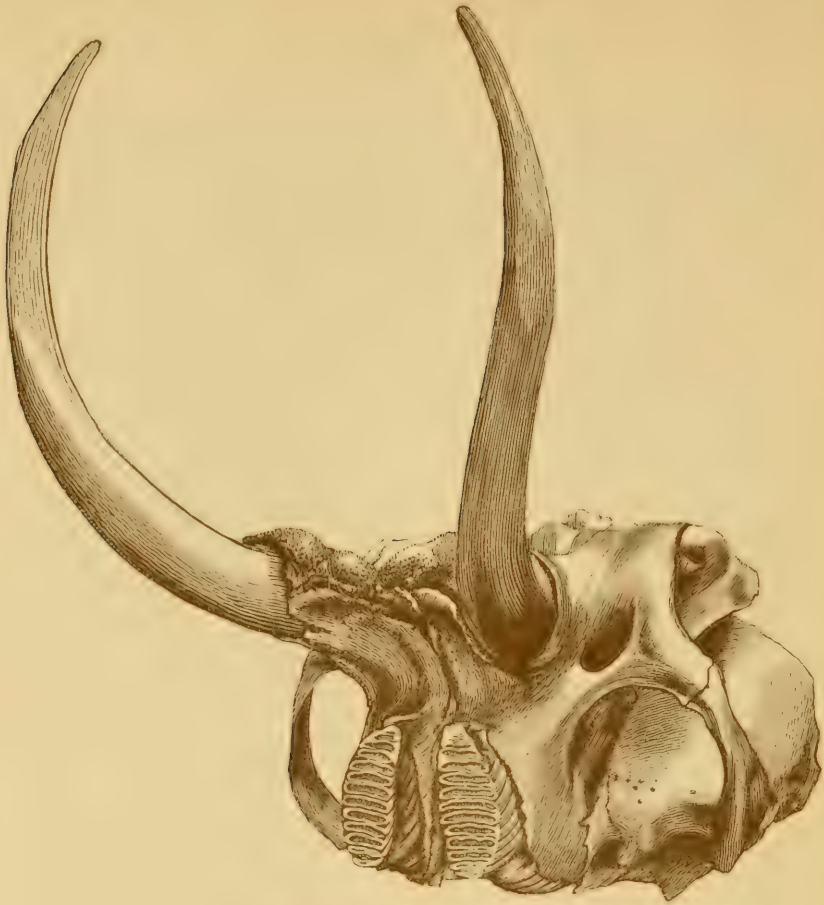
- Owner's measurements.

¹ Mounted specimens.



From a Photograph by Mr. Selous, Mashonaland.

Skull and Horns of White Rhinoceros.
Shot by Mr. F. C. Selous in Mashonaland, 1880.



Under Surface of Skull of Indian Elephant.

The ASIATIC or INDIAN ELEPHANT (*Elephas maximus*).

In general a decidedly smaller animal, the Indian elephant differs from its African relative not only in external form, but also in the structure of its molar teeth, which are composed of a greater number of much thinner vertical plates. The females, as a rule, have only very small tusks, not projecting beyond the jaw ; and in some cases those of the males are equally poorly developed. Five nails are usually present on the fore-feet, and four on the hind pair. Externally, the most characteristic distinction is the comparatively small size of the ears ; next to which comes the presence of a finger-like process on the front edge only of the tip of the trunk ; the African species having one in front and a second behind. The skin is nearly smooth ; and the

bristles on the tail are confined to the front and back edges for some distance above the tip. Other noticeable points are the comparative flatness of the forehead, and the regular convex form of the back, as well as the perfect flexibility of the trunk, which may be compared in structure to an india-rubber tube. In the African elephant the trunk may be compared to a telescope consisting of segments of different calibre. Although males do not generally exceed 9, and females 8 feet in height, specimens have been killed measuring over 10 feet, while one is stated to have reached 11 feet, and a skeleton in the Indian Museum, Calcutta, indicates a still larger individual.

Distribution.—The forest-districts of India, Ceylon, Assam, Burma, Malay Peninsula, Siam, Cochin China, Sumatra, and Borneo. There is some doubt as to which is the typical form of the species. It has been considered that the Ceylon elephant holds this position, but the specimens originally named were probably tuskers introduced from the mainland. The Indian race may therefore be taken as the type. In the Ceylon race (*E. maximus zeylanicus*) the males have very small tusks, and the females are tuskless. The Sumatran race (*E. maximus sumatrensis*) is said to be characterised by the coarser structure of the molar teeth.

♂ Indian elephant, living, 6800 lbs. (*New York Zool. Soc.*).

♀ " " " 4500 " " "

Height (Owner's Measurements).

| At shoulder. | | Locality. | | | | | Owner. |
|--------------|------|---------------------------|---|---|---|---|---------------------------------|
| ft. | ins. | | | | | | |
| 10 | 6 | Burma | . | . | . | . | H. Shaw Dunn. |
| 10 | 5 | Coorg | . | . | . | . | Capt. S. H. Charrington. |
| 10 | 4 | Garhwal, United Provinces | . | | | | Col. J. E. Campbell. |
| 10 | 1 | Ceylon | . | . | . | . | Col. J. J. Harrison. |
| 10 | 1 | India | . | . | . | . | Major-General A. A. A. Kinloch. |
| 9 | 8 | Southern India | . | . | . | . | F. Gompertz. |

Tusks.

| Length out-side curve. | | Greatest circumference. | Weight. | Locality. | | Owner. |
|------------------------|------|-------------------------|---------|-----------|---|----------------------------|
| ft. | ins. | ins. | lbs. | | | |
| -8 | 9 R | 17½ | 81 | Assam | . | The late Earl of Lytton. |
| -8 | 2 L | ... | 80·2 | Do. | . | Do. |
| -8 | 9 | ... | ... | Burma | . | Government House, Rangoon. |
| -8 | 6 | ... | ... | Do. | . | Do. |

— Owner's measurements.

RECORDS OF BIG GAME

| Length out- side curve. | | Greatest cir- cumference. | Weight | Locality. | | Owner. |
|----------------------------|------------------|------------------------------|------------------|-------------------------------|---|--|
| ft. | ins. | ins. | lbs. | | | |
| 8 | 0 | 16 $\frac{7}{8}$ | 90 | S. India . | . | Sir Victor Brooke's Collection. |
| -7 | 6 | 15 $\frac{1}{2}$ | ... | Sumatra . | . | G. F. W. Curtis. |
| -7 | 0 | 14 $\frac{1}{2}$ | ... | | | |
| 17 | 3 $\frac{3}{4}$ | 17 $\frac{1}{2}$ | 102 | Burma . | . | Marquis of Waterford. |
| 7 | 3 $\frac{1}{4}$ | 17 $\frac{1}{2}$ | 97 $\frac{1}{2}$ | Do. . | . | Do. |
| 6 | 11 | 15 $\frac{1}{2}$ | 106 | Do. . | . | R. Gordon Smith. |
| 6 | 6 | 15 $\frac{1}{2}$ | ... | | | |
| 6 | 10 | 17 $\frac{1}{2}$ | 65 $\frac{5}{8}$ | India . | . | Bethnal Green Museum (J. D. Goldingham). |
| -6 | 8 | 18 $\frac{3}{4}$ | 84 | Burma . | . | H. Shaw Dunn. |
| -6 | 5 | 18 $\frac{3}{4}$ | 83 | | | |
| 6 | 7 $\frac{1}{2}$ | 14 $\frac{3}{8}$ | 52 $\frac{1}{2}$ | Mysore . | . | Viscount Powerscourt. |
| -6 | 7 | 12 $\frac{1}{2}$ | 46 $\frac{1}{2}$ | Yala, S. Provinces, Ceylon | | Major R. J. Marker. |
| 3 | 11 $\frac{3}{4}$ | 12 $\frac{1}{4}$ | 29 $\frac{3}{4}$ | Do. . | . | Do. |
| -6 | 4 | ... | ... | Assam . | . | G. H. Moore. |
| -6 | 3 $\frac{1}{2}$ | ... | 73 $\frac{1}{4}$ | Madura District . | . | British Museum. |
| 6 | 2 | 16 $\frac{1}{8}$ | 58 | North Coimbatore . | . | Rev. H. C. B. Stone. |
| 5 | 11 $\frac{1}{4}$ | 16 $\frac{1}{2}$ | 56 $\frac{1}{2}$ | | | |
| -6 | 1 | 17 $\frac{3}{4}$ | 56 $\frac{1}{2}$ | Assam . | . | Noel Williamson. |
| -5 | 11 $\frac{3}{4}$ | 17 $\frac{1}{2}$ | 53 $\frac{1}{2}$ | | | |
| 6 | 0 $\frac{1}{2}$ | ... | 109 | S. India . | . | F. Gompertz. |
| 5 | 8 | ... | ... | | | |
| 6 | 0 | ... | 50 | Madras . | . | J. Fortune. |
| -5 | 10 | ... | ... | Borneo . | . | C. M. D. Stewart. |
| 5 | 8 | ... | ... | Burma . | . | H. A. Kelso. |
| 5 | 7 | ... | ... | | | |
| 5 | 8 | 14 | 33 $\frac{1}{2}$ | Coorg . | . | Capt. S. H. Charrington. |
| 5 | 6 | 14 $\frac{1}{4}$ | 34 $\frac{1}{2}$ | | | |
| -5 | 3 | 15 | 42 | Ceylon . | . | W. S. Murray. |
| 5 | 5 | 16 $\frac{1}{2}$ | ... | Cochin . | . | Sir W. Peck, Bart. |
| 5 | 2 | 16 | ... | Burma . | . | P. Hudson. |
| 4 | 11 | 17 | ... | | | |

- Owner's measurements.

¹ The tusks of the sacred white elephant from King Thebaw's Palace, Mandalay.

| Length out-side curve. | | Greatest circumference. | Weight. | Locality. | | Owner. |
|------------------------|------------------|-------------------------|------------------|------------|---|---------------------------|
| ft. | ins. | ins. | lbs. | | | |
| -5 | 1 $\frac{1}{2}$ | 15 | 35 | Travancore | . | Hon. E. Stonor. |
| 4 | 10 | 15 $\frac{1}{4}$ | 32 $\frac{1}{2}$ | | | |
| 5 | 0 $\frac{1}{2}$ | ... | 35 | Do. | . | Lieut.-Col. G. H. Evans. |
| 4 | 10 | ... | 32 $\frac{1}{2}$ | | | |
| 4 | 10 $\frac{3}{4}$ | 13 $\frac{1}{2}$ | 28 | Malay | . | J. Scott Mason. |
| 4 | 7 $\frac{1}{2}$ | 13 $\frac{1}{2}$ | 27 | | | |
| 4 | 8 | 14 $\frac{1}{2}$ | 33 $\frac{1}{2}$ | Burma | . | W. A. Conduitt. |
| 4 | 7 | 14 $\frac{1}{2}$ | 30 | | | |
| -4 | 6 $\frac{5}{8}$ | 16 $\frac{7}{8}$ | 45 $\frac{1}{4}$ | S. India | . | Lieut.-Col. E. T. Taylor. |
| -4 | 4 $\frac{5}{8}$ | 17 | 38 $\frac{1}{4}$ | | | |
| 4 | 6 | 15 | ... | Travancore | . | Lord Wenlock. |
| 4 | 4 $\frac{1}{2}$ | 15 | ... | | | |

Feet.

| Circumference at base. | Width at bottom, back to front. | Locality. | | Owner. |
|--------------------------------|---------------------------------|---|---|-----------------------------------|
| -67 $\frac{1}{2}$ | ... | From living elephant, by Major-Gen. G. W. Hanson. | | |
| -63 $\frac{1}{2}$ | ... | N. Burma | . | H. Shaw Dunn. |
| 62 $\frac{1}{2}$ | ... | South Arcot District | . | J. Fortune. |
| -61 $\frac{1}{2}$ | ... | Coorg | . | Capt. S. H. Charrington. |
| 61 | 20 | Travancore | . | Col. D. M. Lumsden. |
| -60 $\frac{1}{2}$ | ... | ? | . | Major-Gen. A. A. A. Kinloch. |
| 60 | 18 | Mysore | . | Viscount Powerscourt. |
| -60 | ... | Garhwal | . | B. B. Osmaston. |
| 59 | 19 | ? | . | Lieut. R. Home, R.N. |
| 58 $\frac{1}{2}$ | 18 | Travancore | . | Capt. H. L. Cottingham. |
| 58 $\frac{1}{2}$ | 18 | Assam | . | A. H. Cuming. |
| 58 | 19 | Do. | . | Capt. F. B. Stapleton-Bretherton. |
| -58 | ... | S. India | . | F. Gompertz. |
| 58 | 18 | Travancore | . | Hon. E. Stonor. |
| 57 $\frac{3}{4}$ | 19 | Assam | . | H. C. Holland. |
| ¹ -57 $\frac{1}{2}$ | 17 | Ceylon | . | R. Gordon Smith. |

- Owner's measurements.

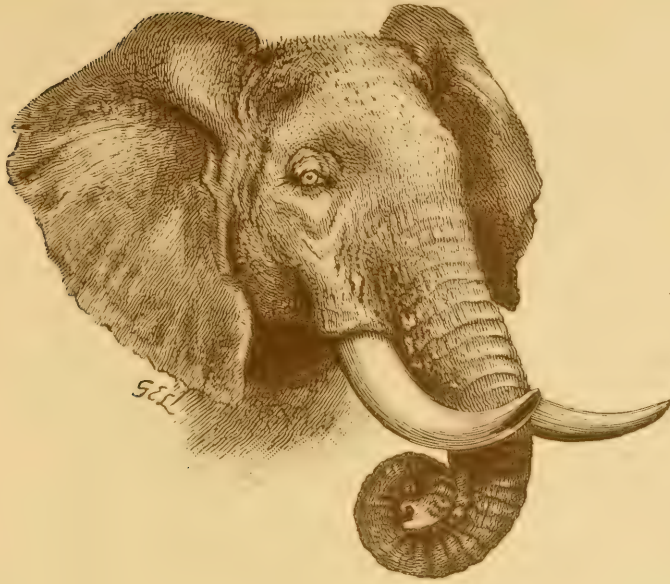
¹ Measurements, 54 ins. \times 17 ins. when dried.

| Circumference at base. | Width at bottom, back to front. | Locality. | Owner. |
|---------------------------|------------------------------------|----------------------|---------------------------|
| 57 $\frac{1}{2}$ | 18 $\frac{1}{2}$ | Assam . . . | D. D. F. Hosack. |
| 57 $\frac{1}{2}$ | ... | S. India . . . | Lient.-Col. E. T. Taylor. |
| -56 | ... | Ceylon . . . | E. J. Brooke. |
| 56 | 17 | Do. . . . | G. M. Norrie. |
| -56 | 18 | Do. . . . | Sir Peter Walker, Bart. |
| -56 | 17 $\frac{1}{2}$ | Do. . . . | T. H. Mann. |
| 56 | 17 $\frac{1}{4}$ | ? | Capt. G. P. Evans. |
| 55 $\frac{1}{2}$ | 18 $\frac{1}{2}$ | Travancore . . . | Lord Wenlock. |
| 55 | 17 $\frac{1}{2}$ | Burma | H. Twyford. |
| ¹ 55 | 17 | Garhwal | B. B. Osmaston. |
| ² 55 | 20 $\frac{3}{4}$ | ? | Lieut. R. Home, R.N. |
| 55 | 17 | United Provinces . . | Major G. O. Bigge. |

- Owner's measurements.

¹ Measurements, 59 $\frac{1}{2}$ when shot.

² Hind foot.



Head of African Elephant.

The AFRICAN ELEPHANT (*Elephas* [*Loxodon*] *africanus*).

Ärb, Galla.

Dakana, Danakil.

Fyl, Sudani.

Marodi, Somali.

Musovu, Chila.

Njovu, Chilala and Chibisa.

Njovu, Waganda.

Temba, Swahili.

Tepo, M'Kua.

Thlo, Ngami.

Tlo, Barotsi.

Zahon, Abyssinian.

Some of the distinctive features of the African elephant are indicated under the heading of the Indian species.

The African elephant, although still abundant in many regions of Central Africa, in the southern part of the continent is rapidly approaching extinction. A remarkable exception to this process of extermination is, however, to be found in the south and east of Cape Colony, where, since the year 1830, wild elephants have been systematically preserved by Government. Strong troops of these protected elephants still roam the dense and impenetrable jungles of the Addo Bush and the Knysna and Zitzikamma forests. Farther inland the ivory-hunters have for a generation past been so actively

employed that, despite the vast numbers of these great mammals which forty or fifty years ago thronged the interior from the Orange River northwards, but few herds are now left south of the Zambesi. The species has been divided into a number of local races, mainly distinguished by the form and size of the ears and tusks.

OWNER'S MEASUREMENTS.

| Height at shoulder in straight line. | | Total length (trunk to end of tail). | | Girth of fore-foot. | | Locality. | Owner. |
|---|------|---|------|------------------------|---------------|-------------------------|---------------------------------------|
| ft. | ins. | ft. | ins. | ft. | ins. | | |
| 11 | 8½ | ... | ... | ... | ... | Abyssinia | H. Weld-Blundell. |
| ¹ 11 | 6½ | 15 | 5 | 5 | 5½ | Near Wadelai | Major P. H. G. Powell-Cotton. |
| 11 | 6 | ... | ... | 4 | 10 | Do. | E. S. Grogan and Major G. A. S. Cape. |
| 11 | 4 | ... | ... | ... | ... | Kavirondo Hills | E. B. Bronson. |
| 11 | 4 | ... | ... | ... | ... | Sudan | Earl of Sefton. |
| 11 | 3 | ... | ... | ... | ... | East Africa | The late A. H. Neumann. |
| 11 | 3 | ... | ... | ... | ... | Do. | H. B. Tate. |
| 11 | 2½ | ... | ... | ... | ... | Blue Nile | Capt. J. A. Pollock. |
| 11 | 1 | 17 | 3 | 4 | 11 | Mozambique | Col. J. J. Harrison. |
| 11 | 1 | ... | ... | 5 | 4 | Toro, E.C.A. | E. S. Grogan. |
| 11 | 1 | ... | ... | ... | ... | East Africa | Abel Chapman. |
| 11 | 0 | ... | ... | ... | ... | Do. | G. F. Archer. |
| 11 | 0 | ... | ... | ... | ... | Uganda | G. M. Norrie. |
| 10 | 10½ | ... | ... | ... | ... | Sudan | G. C. Whitaker. |
| 10 | 10½ | ... | ... | ... | ... | Sierra Leone | Capt. W. P. Pearse. |
| 10 | 10 | ... | ... | ... | ... | N.W. Rhodesia | Dr. A. H. B. Kirkwood. |
| 10 | 10 | ... | ... | ... | ... | White Nile | Major R. M. Sanders. |
| 10 | 9 | ² 12 | 8 | 5 | 0 | Lake Rudolf | The late A. H. Neumann. |
| 10 | 8 | ... | ... | ... | ... | Uganda | M. Mitchell. |
| 10 | 8 | ... | ... | 4 | 10 | Tana Valley | Major H. De Préé. |
| 10 | 7 | "Jumbo" | ... | ... | ... | ... | Barnum and Bailey. |
| 10 | 6 | ... | ... | 4 | 8 | Tana Valley | Capt. C. Hankey. |
| 10 | 6 | ... | ... | ... | ... | S.E. Africa | F. C. Selous. |
| 10 | 3 | 21 | 0 | 5 | 1 | Nyasaland | Sir John Kirk. |
| 9 | 7¼ | ... | ... | 4 | 6¾ (dried) | Somaliland | Viscount Edmond de Poncins. |

¹ Length of humerus 3 ft. 8 ins.² Length from root of tail to eye, in straight line.

With reference to the height of elephants, the late Mr. A. H. Neumann, in *Elephant Hunting in East Equatorial Africa*, stated that "I am an

unbeliever in 14 ft. elephants or anything like it. Possibly (though I doubt even that) there may be a 12 ft. one in existence, but I have had some experience (and probably more opportunities of judging than most of those who pose as authorities), and I have never killed one that could be absolutely guaranteed to be over 11 ft. 3 ins. in height (to be quite on the safe side, for as a fact I made it an inch more). I have killed two of that height in my time, and not another within several inches of this."



African Elephant Tusk in the American National Collection.

Tusks.

| Length (outside curve). | | Greatest circumference. | Weight. | Locality. | Owner. |
|----------------------------|------|----------------------------|---------|-------------|--|
| ft. | ins. | ins. | lbs. | | |
| 11 | 5½ | 18½ | 293 | East Africa | American National Collection. (See illustration.) |
| 11 | 0 | | | | |
| 10 | 2 | | 159 | Marsabit | F. J. Watson Taylor. |
| 10 | 2½ | 24½ | 226½ | East Africa | British Museum. |
| 9 | 10 | 19½ | 247 | Do. | Charles Pulley. |
| 9 | 5 | 19 | | | |
| 9 | 5½ | 18¾ | 120 | Tana Valley | Major H. De Pré. |
| 9 | 0 | 18½ | 117 | | |
| 9 | 5 | 22½ | 184 | ? | Sir Edmund G. Loder, Bart. |
| 9 | 4 | 20½ | 160 | East Africa | Sir John Kirk. |

| Length (outside curve). | | Greatest circumference. | Weight. | Locality. | Owner. |
|----------------------------|------------------|----------------------------|-------------------|----------------------|---|
| ft. | ins. | ins. | lbs. | | |
| 9 | 4 | 18 | 110 | East Africa . . | Duke of Westminster. |
| (tip broken) | | | | | |
| -9 | 4 | ... | 151 | Elgayu, E. Africa . | F. J. Jackson. |
| 9 | 3 $\frac{1}{2}$ | 18 $\frac{3}{4}$ | ... | Tana Valley . . | Sir Robert Harvey, Bart. |
| 9 | 3 | ... | 129 | East Africa . . | F. J. Jackson. |
| 9 | 2 $\frac{3}{4}$ | 20 | ... | Tana Valley . . | Sir Robert Harvey, Bart. |
| 9 | 2 | 24 | | | |
| 8 | 5 | 24 | 340 | Uganda . . | Capt. H. S. Burroughs. |
| 9 | 1 | 19 $\frac{1}{2}$ | 114 | | |
| 8 | 10 $\frac{1}{2}$ | 19 $\frac{1}{2}$ | 108 | East Africa . . | Col. A. Eric Smith. |
| 9 | 0 | 21 $\frac{3}{8}$ | 161 | | |
| 8 | 11 | 22 $\frac{1}{2}$ | 167 | Tana Valley . . | His Majesty the King. |
| 9 | 0 | 21 $\frac{1}{2}$ | 139 | | |
| 8 | 6 | 21 $\frac{1}{2}$ | 141 | Uganda . . | Frankfurt Museum. Shot by G. G. Longden. |
| 9 | 0 | 25 | 198 | | |
| 8 | 11 | 23 $\frac{1}{2}$ | 174 | Central Africa . | Major P. H. G. Powell-Cotton. |
| 9 | 0 | 21 | 130 | | |
| 8 | 10 | 21 | 124 | East Africa . . | J. Elkington. |
| 8 | 11 | 20 | 130 | | |
| 8 | 8 $\frac{1}{2}$ | 19 $\frac{3}{4}$ | 124 $\frac{1}{2}$ | Do. . . | N. C. Cockburn. |
| 8 | 11 | 18 $\frac{1}{2}$ | 110 | | |
| 8 | 9 | 18 $\frac{1}{2}$ | 108 | Mt. Elgon, E. Africa | Major J. D. Ferguson. |
| 8 | 10 | 18 | 105 | East Africa . . | Lord Delamere. |
| -8 | 9 $\frac{1}{2}$ | ... | 102 | | |
| -8 | 0 | ... | 91 | Tana Valley . . | Major H. De Prée and Capt. C. Hankey. |
| 8 | 9 $\frac{1}{2}$ | 17 | 90 | | |
| 7 | 11 $\frac{1}{2}$ | 17 $\frac{1}{2}$ | 92 | East Africa . . | Sutton Timmis. |
| 8 | 9 | 19 $\frac{1}{2}$ | 104 | | |
| 8 | 3 $\frac{1}{2}$ | 19 $\frac{1}{2}$ | 100 | Do. . . | G. M. Norrie. |
| 8 | 7 $\frac{1}{2}$ | 22 $\frac{3}{4}$ | 165 | Do. . . | His Majesty the King. |
| 8 | 6 | 17 $\frac{1}{4}$ | 78 $\frac{1}{2}$ | | |
| 8 | 6 | 17 | 78 $\frac{1}{2}$ | Congo . . | Duke of Peneranda. |

- Owner's measurements.

¹ Presented by H. H. Aga Khan.² Presented by Rudolf de Goldschmidt.

| Length (outside curve). | | Greatest circumference. | Weight. | Locality. | Owner. |
|----------------------------|------------------|----------------------------|-------------------|----------------------|-------------------------|
| ft. | ins. | ins. | lbs. | | |
| 8 | 5 | 23 $\frac{3}{4}$ | 175 | Uganda . . . | Graham Pownall. |
| 8 | 5 | 19 $\frac{3}{4}$ | 139 $\frac{1}{2}$ | Bahr-el-Gebel . . | Major R. M. Sanders. |
| 8 | 1 $\frac{3}{4}$ | 19 $\frac{3}{4}$ | 137 | | |
| 8 | 4 | 17 $\frac{1}{2}$ | 88 $\frac{1}{2}$ | East Africa . . . | W. Neilson. |
| 8 | 4 | ... | 76 | M'bogo . . . | E. S. Grogan. |
| 8 | 3 $\frac{1}{2}$ | ... | 125 | E.C. Africa . . . | Major M. L. Hornby. |
| 8 | 0 | ... | 127 $\frac{1}{2}$ | | |
| 8 | 3 | 18 $\frac{3}{4}$ | 81 $\frac{1}{2}$ | East Africa . . . | Capt. T. W. Greenfield. |
| 8 | 2 | 18 $\frac{3}{4}$ | 80 | | |
| 8 | 3 | 22 | 135 $\frac{1}{2}$ | Sudan . . . | Sir W. Garstin. |
| 7 | 11 | 23 $\frac{1}{2}$ | 159 $\frac{1}{2}$ | | |
| 8 | 4 | 21 $\frac{1}{2}$ | 150 | Near Wadelai . . . | W. Y. Wyndham. |
| 8 | 3 | 21 | 147 | | |
| 8 | 2 | 20 $\frac{1}{4}$ | 145 | Gondokoro . . . | His Majesty the King. |
| 7 | 8 $\frac{1}{2}$ | 20 $\frac{1}{2}$ | 121 | | |
| 8 | 1 | 20 $\frac{1}{4}$ | 110 | Abyssinian Sudan . . | W. N. McMillan. |
| 8 | 0 | 20 | 108 | | |
| 17 | 11 | 19 $\frac{3}{4}$ | 98 | Sierra Leone . . . | Major C. E. Palmer. |
| 7 | 8 $\frac{3}{4}$ | 20 $\frac{1}{4}$ | 138 | | |
| 7 | 11 | 17 $\frac{5}{8}$ | 90 | White Nile . . . | Capt. E. R. Wishaw. |
| 7 | 0 | 17 | 80 | | |
| 7 | 10 | 17 $\frac{1}{2}$ | 85 | East Africa . . . | C. Bower Ismay. |
| 7 | 6 $\frac{1}{2}$ | 17 | 81 | | |
| 7 | 10 $\frac{1}{2}$ | 20 | 113 | Upper Nile . . . | Douglas M'Douall. |
| 7 | 5 $\frac{1}{2}$ | 20 $\frac{1}{2}$ | 108 | | |
| 7 | 10 | 16 $\frac{1}{2}$ | 63 | East Africa . . . | R. Holmes. |
| 7 | 8 $\frac{1}{2}$ | 16 $\frac{1}{2}$ | 68 $\frac{1}{2}$ | | |
| 7 | 9 | 17 $\frac{1}{2}$ | 95 $\frac{1}{2}$ | Do. . . . | P. Niedieck. |
| 7 | 9 | 22 | 119 | N.E. Rhodesia . . . | F. H. Melland. |
| 7 | 8 $\frac{1}{4}$ | 20 $\frac{1}{2}$ | 110 | | |
| 7 | 9 | 22 $\frac{1}{2}$ | 268 | Lake Rudolf . . . | A. E. Butter. |
| 7 | 7 | 21 $\frac{1}{2}$ | | | |

- Owner's measurements.

¹ In Hon. Walter Rothschild's Museum at Tring.

RECORDS OF BIG GAME

| Length (outside curve). | | Greatest circumference. | Weight. | Locality. | Owner. |
|----------------------------|------------------|----------------------------|------------------|-------------------|------------------------------|
| ft. | ins. | ins. | lbs. | | |
| 7 | 7 | 16 $\frac{3}{4}$ | ... | Lake Naivasha | T. W. Brooke. |
| 7 | 6 | 16 $\frac{3}{4}$ | ... | | |
| 7 | 6 $\frac{1}{2}$ | 17 $\frac{1}{2}$ | 78 $\frac{1}{4}$ | Congo | R. de la Huerta. |
| 7 | 2 | ... | 75 $\frac{3}{4}$ | | |
| 7 | 6 | 20 | 103 | East Africa | Col. Max C. Fleischmann. |
| 6 | 9 | 19 $\frac{3}{4}$ | 93 | | |
| 7 | 5 $\frac{1}{2}$ | 18 | 85 | Sudan | Capt. A. W. Jennings Bramly. |
| 7 | 5 | 18 $\frac{1}{4}$ | 80 | | |
| -7 | 5 | ... | 83 | Uganda | M. Mitchell. |
| -7 | 4 | ... | 81 | | |
| 7 | 5 | 19 $\frac{1}{4}$ | 84 | Sudan | Capt. H. D. Pearson. |
| 7 | 5 | 22 $\frac{1}{2}$ | 114 | Lado | Capt. R. S. Hart. |
| 7 | 2 | 23 | 112 | | |
| 7 | 3 $\frac{1}{2}$ | 17 $\frac{1}{4}$ | 80 $\frac{1}{2}$ | East Africa | J. Jay White. |
| 6 | 10 $\frac{1}{2}$ | 16 $\frac{3}{4}$ | 75 $\frac{1}{2}$ | | |
| 7 | 2 $\frac{1}{2}$ | 19 | 80 | Uganda | G. Grey. |
| 6 | 8 $\frac{1}{2}$ | 19 | 79 | | |
| 7 | 2 $\frac{1}{2}$ | 18 $\frac{1}{4}$ | 87 | Abyssinian Sudan | C. Bulpett. |
| 6 | 7 | 18 $\frac{1}{4}$ | 85 | | |
| 7 | 2 | 19 $\frac{1}{2}$ | 88 | Uganda | G. M. Norrie. |
| 6 | 10 | 19 | 77 | | |
| 7 | 2 | 17 $\frac{1}{2}$ | 81 $\frac{1}{2}$ | Sudan | Countess of Sefton. |
| 6 | 7 $\frac{1}{2}$ | 17 $\frac{1}{2}$ | 80 $\frac{3}{4}$ | | |
| 7 | 1 | 17 | 68 | East Africa | Abel Chapman. |
| 6 | 11 | 17 $\frac{1}{4}$ | 67 | | |
| 7 | 0 $\frac{1}{2}$ | 18 $\frac{1}{2}$ | 81 | Do. | A. H. Wheeler. |
| 7 | 0 | 18 $\frac{1}{4}$ | 79 | | |
| 7 | 0 $\frac{1}{2}$ | 18 $\frac{1}{4}$ | ... | Do. | S. H. Christy. |
| 6 | 11 | 18 | ... | | |
| 6 | 10 $\frac{1}{2}$ | 17 $\frac{1}{2}$ | 65 | N. Nigeria | Capt. G. C. Kelly. |
| 6 | 0 | 17 $\frac{1}{2}$ | 59 $\frac{1}{2}$ | | |
| 6 | 9 $\frac{1}{2}$ | 19 | 77 | Sudan | Major the Hon. H. Fraser. |
| 6 | 8 | 17 | 68 $\frac{1}{2}$ | | |
| 6 | 7 | 16 $\frac{3}{8}$ | ... | South-East Africa | F. C. Selous. |

- Owner's measurements.

| Length (outside curve), | | Greatest circumference. | Weight. | Locality. | Owner. |
|----------------------------|-----------------|----------------------------|------------------|---------------------|--------------------------------|
| ft. | ins. | ins. | lbs. | | |
| 6 | 6 | 18 $\frac{1}{2}$ | 57 | S. E. Africa . . . | P. Neergaard. |
| 6 | 4 $\frac{1}{2}$ | 18 $\frac{1}{2}$ | 63 $\frac{1}{2}$ | | |
| 6 | 6 | 15 $\frac{1}{2}$ | ... | B. C. Africa . . . | R. H. Storey. |
| 6 | 4 | | | | |
| 7 | 6 | 12 $\frac{1}{2}$ | ... | N. of Lake Rudolf . | The late A. H. Neumann. |
| 6 | 3 | 17 $\frac{1}{2}$ | 59 | Sudan . . . | Earl of Sefton. |
| 6 | 2 $\frac{1}{2}$ | 17 $\frac{1}{2}$ | 61 $\frac{1}{2}$ | | |
| 6 | 2 $\frac{1}{2}$ | 18 $\frac{1}{2}$ | ... | Lomagundi's Country | Duke of Westminster. |
| 5 | 7 $\frac{1}{2}$ | 18 $\frac{5}{8}$ | | | |
| 5 | 0 | 14 $\frac{3}{4}$ | 49 | Abyssinia . . . | A. E. Butter. |
| 4 | 8 | 14 $\frac{3}{4}$ | 47 | | |
| 4 | 11 | 15 | 26 | Somaliland . . . | A. H. Straker. |
| 4 | 9 $\frac{1}{2}$ | 14 $\frac{3}{8}$ | 33 $\frac{1}{2}$ | Do. . . | Major E. W. S. Brooke. |
| 4 | 8 $\frac{1}{4}$ | 13 $\frac{1}{2}$ | | Do. . . | Sir Edmund G. Loder, Bart. |
| 4 | 5 | 12 $\frac{1}{2}$ | ... | Do. . . | Lord Delamere. |
| 4 | 4 | 13 $\frac{3}{4}$ | 26 | Do. . . | Lieut.-Col. J. M'Call Maxwell. |

Feet.

| Circumference at base. | Width at bottom, back to front. | Locality. | Owner. |
|---------------------------|------------------------------------|----------------------|-------------------------------|
| 66 $\frac{1}{2}$ | 22 | East Africa . . . | G. F. Archer. |
| 65 $\frac{1}{4}$ | 20 $\frac{1}{2}$ | Near Albert Nyanza . | H. S. Keating. |
| 65 $\frac{1}{4}$ | ... | Near Wadelai . . . | Major P. H. G. Powell-Cotton. |
| 65 | ... | Central Africa . . . | Arnold Mathews. |
| 64 | ... | Uganda . . . | G. M. Norrie. |
| 64 | 20 $\frac{1}{2}$ | Toro . . . | E. S. Grogan. |
| 64 | ... | Uganda . . . | M. Mitchell. |
| 63 $\frac{1}{2}$ | 20 | White Nile . . . | Sir W. Garstin. |
| 63 $\frac{1}{2}$ | 21 $\frac{1}{2}$ | Uganda . . . | G. G. Longden. |
| 63 | 20 | White Nile . . . | Major C. J. Hawker. |
| 63 | ... | Blue Nile . . . | Capt. J. A. Pollock. |
| 62 $\frac{1}{2}$ | 21 | Sudan . . . | Earl of Sefton. |
| 62 $\frac{1}{2}$ | ... | Do. . . | M. C. Radford. |
| 62 | 20 | East Africa . . . | C. Craig. |

- Owner's measurements.

| Circumference at base. | Width at bottom, back to front. | Locality. | Owner. |
|---------------------------|------------------------------------|-------------------|-----------------------------|
| 61 | ... | N. Nigeria . . . | Capt. G. C. Kelly. |
| -61 | ... | East Africa . . . | Marquis Pizzardi. |
| 60 $\frac{3}{4}$ | ... | Somaliland . . . | Capt. M. S. Wellby. |
| 60 $\frac{1}{2}$ | ... | White Nile . . . | Sir Edmund G. Loder, Bart. |
| 60 $\frac{1}{2}$ | 20 | Sudan . . . | G. C. Whitaker. |
| 60 | 19 | Wadelai . . . | Lieut.-Col. M. L. Carleton. |
| -60 | ... | East Africa . . . | E. B. Bronson. |
| 59 | 18 $\frac{1}{2}$ | Do. . . | J. Jay White. |
| 58 $\frac{3}{4}$ | 19 | Do. . . | Capt. Neill Malcolm. |
| -58 | ... | Do. . . | Abel Chapman. |
| -58 | 21 | Tana Valley . . . | Major H. De Préc. |
| 57 | 18 | East Africa . . . | G. Grey. |
| 56 $\frac{1}{2}$ | 18 $\frac{1}{2}$ | B.C. Africa . . . | C. B. C. Storey. |
| 56 $\frac{1}{2}$ | 18 $\frac{1}{2}$ | East Africa . . . | A. H. Wheeler. |
| 56 | ... | Upper Nile . . . | Major C. A. Sykes. |
| 55 $\frac{1}{2}$ | 18 | East Africa . . . | Sutton Timmis. |
| 55 $\frac{1}{2}$ | ... | B.C. Africa . . . | S. Robins. |
| 55 $\frac{1}{2}$ | 17 $\frac{1}{4}$ | P.E. Africa . . . | P. Neergaard. |

- Owner's measurements.

The MAMMOTH or SIBERIAN ELEPHANT (*Elephas primigenius*).

Nearly allied to the Indian elephant, but the plates of the teeth still narrower and more numerous, the tusks spirally twisted, the ears smaller, and the skin clothed in woolly fur with long bristles intermixed.

Remains of this species occur in the superficial deposits of Europe and Northern Asia. In the frozen soil of Siberia the skin, flesh, and hair are frequently preserved, and the ivory is often suitable for the purposes of the turner.

| Length (out-side curve). | | Greatest circumference. | Weight. | Locality. | | Owner. |
|--------------------------|------------------|-------------------------|--------------------|-----------|-------|----------------------------|
| ft. | ins. | ins. | lbs. | | | |
| 12 | 10 $\frac{1}{2}$ | 31 $\frac{1}{2}$ | ... | ? | | Stuttgart Museum. |
| 12 | 8 | ... | ... | Siberia | . . . | Hon. Walter Rothschild. |
| 12 | 6 | 23 | ... | ? | | British Museum. |
| 12 | 0 | 19 | ... | ? | | Hon. Walter Rothschild. |
| 11 | 9 | 35 | 330 (estimated) | ? | | Milan Museum. |
| 11 | 5 | 17 $\frac{3}{4}$ | ... | ? | | Hon. Walter Rothschild. |
| 11 | 0 | 20 $\frac{7}{8}$ | 173 | Siberia | . . . | Sir Edmund C. Loder, Bart. |



Study of an African Lion (fore part), by Rowland Ward.

The LION (*Felis leo*).

| | |
|--|---|
| <i>Ambassa</i> , Abyssinian. | <i>Leeuw</i> , Cape Dutch. |
| <i>Asced</i> , Arabic. | <i>Libbaka</i> , Danakil. |
| <i>Imbubi</i> , <i>Ibubesi</i> , <i>Inyonyama</i> , <i>Matonga</i> , and <i>Marhanganga</i> , | <i>Nkango</i> or <i>Nkalamo</i> , Chilala and Chibisa. |
| Swazi and Zulu. | <i>Shumba</i> , Chila. |
| <i>Karamo</i> , M'Kua. | <i>Simba</i> , Swahili. |
| <i>Lendjandnēk</i> , Galla. | <i>Tau</i> , Basuto and Bechuana. |
| <i>Libba</i> , Somali. | <i>Tauw</i> , Barotsi and Ngami. |
| | <i>Zaki</i> , Hausa. |

Any description of such a familiar animal as the lion (the only cat in which the male is furnished with a mane on the head and shoulders, and a tuft of long hair to the tip of the tail) would obviously be superfluous here. One of the points of interest attaching to the species is its wide distribution. Several local races are now recognised. Somali lions are smaller and greyer than those from either the Cape or Algeria, although their manes are often very fine; and the Indian lion (*F. leo gujratisensis*), distinguished by its small, straight, and tawny mane and pale tawny colour, is another race. Heights of 3 feet $3\frac{1}{2}$ and 3 feet

8 inches at the shoulder have been recorded in African specimens (the larger measurement by Mr. Selous), and 3 feet 6 inches in an Indian example (by Gen. W. Rice). Mr. Selous killed an African lion weighing 500 lbs.; and between 400 and 500 lbs. may be taken as the average weight. Wild lions seldom develop such enormous manes as manerie examples.

A lion's skull may be easily recognised when placed beside that of a tiger by the fact that in the former the terminations of the sutures dividing the frontal from the nasal and maxillary (jaw) bones are situated nearly in the same transverse line, while in the latter the nasal bones extend much farther back than the maxillary. Moreover, the lower jaw of a lion will stand much flatter on a table than that of a tiger.

Distribution.—In modern times Africa from Algeria to the Cape, Mesopotamia on the west flanks of the Zagros range, Persia south of Shiraz, and India in the districts of Kathiawar, Sind, the Central Provinces, and Bundelcund. Now rare in India, where it is confined to the Gir Forest in Kathiawar.

OWNER'S MEASUREMENTS.

| Total length before skinning. | Length from nose to root of tail. | Skin measure- ment from tip of nose to tip of tail. | Height at shoulder. | Girth of forearm. | Girth behind shoulder. | Weight. | Locality. |
|----------------------------------|---|--|------------------------|----------------------|------------------------------|---------|-----------|
|----------------------------------|---|--|------------------------|----------------------|------------------------------|---------|-----------|

Owner's Measurements.

| Total length before skinning. | Length from nose to root of tail. | Skin measure- ment from tip of nose to tip of tail. | Height at shoulder. | Girth of forearm. | Girth behind shoulder. | Weight. | Manner. | Locality. | Owner. |
|----------------------------------|---|--|------------------------|----------------------|------------------------------|---------|------------------|-------------------------------|---|
| ft. ins. | ft. ins. | ft. ins. | ft. ins. | ins. | ins. | lbs. | | | |
| 10 5 (A) | ... | 10 10½ (raw) | 3 7 | ... | ... | ... | Full black | S. E. Africa | F. Vaughan Kirby. |
| 10 5 | ... | ... | ... | ... | ... | ... | Fine | East Africa | Dr. W. S. Rainsford. |
| 10 4 | 7 2 | 11 4 | ... | 20 | ... | ... | Fair | ? | F. Vaughan Kirby. |
| 10 4 | 7 6 | 10 3 (dressed) | ... | ... | ... | ... | Good | Gir Forest, India | Lord Lamington. |
| 10 4 | ... | 11 2 | ... | ... | ... | ... | ... | East Africa | Capt. the Hon. G. H. Douglas Pennant. |
| 10 4 | ... | ... | ... | ... | ... | ... | ... | Somaland | Count T. Zamoyski. |
| 10 2 | 7 3 | ... | 3 6 | ... | ... | ... | Fair | Blue Nile | Capt. C. C. Maud. |
| 10 1 | ... | ... | ... | ... | ... | ... | Fine | East Africa | E. Sartorius. |
| 10 0 | 6 10 | ... | 3 6 | 22 (upper arm) | 57 | 434 | Fine | Edmund's Menagerie | W. Yellowby. |
| 10 0 | 7 0 | 11 9 | 3 7½ | ... | ... | ... | Fair | British East Africa | C. C. Branch. |
| 10 0 | 7 5½ | 10 2 | ... | ... | 52½ | ... | Fine | Somaland | Count R. Coudenrove-Kalergi. |
| 9 11 (c) | ... | 11 9 (raw) | 3 8 | ... | ... | 410 | ... | Hartley Hills, Mashonaland | F. C. Selous. |
| 9 11 | ... | 11 5½ | 3 7 | 16½ | ... | ... | Do. | British East Africa | Norman B. Smith. |
| 9 10½ (D) | 6 8 | 10 8 (dressed) | 3 6 | 19½ | 51½ | 516 | Do. | Do. | The late Rear-Admiral R. A. J. Montgomerie, R.N. |
| 9 10 (H) | ... | 12 1½ (raw) | 3 7 | ... | 49½ | ... | Full black | Mushukulumbwe | Major A. St. H. Gibbons. |
| 9 10 | ... | ... | 4 0 | 19 | ... | ... | ... | N.W. Rhodesia | J. Bracken. |
| 9 10 (K) | ... | 11 6 | ... | ... | ... | ... | Yellow and black | Somaland | A. E. Leatham. |
| 9 9 | 6 9 | ... | 3 6½ | 17 | 51½ | ... | Good | N.W. Rhodesia | R. C. Forster. |
| 9 8 13 | 6 10 | ... | ... | ... | ... | ... | ... | East Africa | Prince Henry of Liechtenstein. |
| 9 8 | 6 6½ | ... | 3 4½ | 15½ | ... | ... | Full yellow | Zomba | R. G. Beswick. |
| 9 8 | ... | ... | ... | 19 | 52 | ... | Fine black | East Africa | Major H. B. Dalgety. |
| 9 8 | ... | ... | 3 9 | ... | ... | ... | None | British East Africa | Lieut.-Col. J. H. Patterson. |
| 9 8 | ... | 12 0 | ... | 17 | ... | ... | Fair | Do. | Sutton Timmis. |
| 9 7 | ... | ... | ... | 21½ | 45 | ... | Fine | P. E. Africa | Capt. M. McNeill. |
| 9 7 | ... | ... | ... | ... | ... | ... | Do. | Kathiawar | Lord Harris. |
| 9 7 | 6 8½ | ... | ... | ... | ... | ... | ... | East Africa | Prince Henry of Liechtenstein. |
| 9 6 | 10 5 | ... | ... | 19 | 49 | ... | ... | B. C. Africa | S. Robins. |
| 9 6 | ... | ... | ... | ... | ... | ... | ... | East Africa | Sutton Timmis. |
| 9 5 | 6 6 | ... | ... | ... | ... | ... | ... | Kathiawar | Lieut.-Col. L. L. Fenton. |
| 9 4 | ... | 10 1½ | 3 7½ | 17½ | 44 | ... | ... | N.W. Rhodesia | C. G. Leslie. |
| 9 8 1½ | ... | ... | 2 10½ | ... | ... | 260 | ... | B. E. Africa | Capt. R. Meinertzhagen. |
| ... | ... | 10-2 (dressed) | ... | ... | ... | ... | ... | Do. | H. R. H. the Duke of Connaught. |

Skulls.

| Length from back to front. ¹ | Width across the zygomatic arches. | Weight cleaned. | Locality. | Owner. |
|---|--|----------------------|-------------------|---|
| 17 | 11 $\frac{1}{16}$ | ... | Delagoa Bay | Berlin Museum. |
| 16 $\frac{1}{2}$ (A) | 10 | ... | South-East Africa | F. Vaughan Kirby. |
| 16 (end broken) | 10 $\frac{1}{4}$ | 5 lbs. | East Africa | E. Gedge. |
| -16 | 10 $\frac{1}{2}$ | ... | ? | P. C. Keytel. |
| -15 $\frac{7}{8}$ | 9 $\frac{3}{4}$ | 6 lbs. | South Africa | J. Lamont. |
| 15 $\frac{9}{16}$ | 10 | 6 $\frac{1}{2}$ lbs. | Do. | Hon. C. G. Murray. |
| 15 $\frac{1}{2}$ (D) | 10 $\frac{1}{2}$ | 5 lbs. 3 oz. | East Africa | The late Rear-Admiral R. A. J. Montgomerie, R.N. |
| 15 $\frac{1}{2}$ | 9 $\frac{1}{4}$ | ... | Pungwe | Hon. T. Thynne. |
| 15 $\frac{1}{2}$ | 9 $\frac{1}{4}$ | ... | S. Rhodesia | C. W. Adams. |
| -15 $\frac{1}{4}$ (H) | 9 $\frac{1}{4}$ | ... | Mushukulumbwe. | Major A. St. H. Gibbons. |
| 15 | 10 | ... | Mashonaland | Basil H. Woodd. |
| -15 | 10 | ... | Somaliland | J. D. Inverarity. |
| 15 | 10 | ... | Benguela | G. W. Penrice. |
| 15 | 9 $\frac{1}{2}$ | ... | Beira | H. T. and A. H. Glynn. |
| 15 | 9 $\frac{1}{2}$ | ... | Somaliland | H. R. H. the Duc d'Orléans. |
| 15 | 10 | ... | Do. | Lieut.-Gen. Sir Arthur Paget. |
| 15 (C) | 10 | 5 $\frac{1}{2}$ lbs. | South-East Africa | F. C. Selous. |
| 15 | 10 $\frac{1}{8}$ | 5 lbs. 6 oz. | East Africa | A. E. F. Fawcus. |
| 14 $\frac{7}{8}$ | 9 | ... | Do. | G. L. Harrison. |
| 14 $\frac{3}{4}$ | 9 $\frac{5}{8}$ | ... | N.W. Rhodesia | J. Bracken. |
| 14 $\frac{3}{4}$ | 9 | ... | South-East Africa | H. M. von Archer. |
| 14 $\frac{3}{4}$ | 9 | ... | Matabililand | Capt. Sir K. Fraser, Bart. |
| 14 $\frac{1}{16}$ | 10 $\frac{1}{16}$ | 5 lbs. | East Africa | C. C. Branch. |
| 14 $\frac{1}{4}$ | 9 $\frac{7}{8}$ | 4 lbs. 8 oz. | S.E. Africa | E. P. Frost. |
| 14 $\frac{5}{8}$ | ... | ... | Nigeria | N. J. Dodd. |
| 14 $\frac{1}{16}$ | 10 $\frac{1}{16}$ | 4 lbs. 12 oz. | East Africa | Major P. H. G. Powell-Cotton. |
| 14 $\frac{1}{2}$ | 9 $\frac{3}{4}$ | 4 lbs. | South Africa | Sir Edmund G. Loder, Bart. |
| 14 $\frac{1}{2}$ | 9 $\frac{1}{2}$ | ... | Do. | Abe Bailey. |
| 14 $\frac{1}{2}$ | 10 | ... | East Africa | Norman B. Smith. |
| 14 $\frac{1}{2}$ | 10 | 5 lbs. | Do. | H. R. H. the Duke of Connaught. |
| 14 $\frac{3}{8}$ | 9 $\frac{3}{8}$ | ... | Rhodesia | W. Robinson. |
| -14 $\frac{1}{4}$ (K) | 9 $\frac{1}{4}$ | ... | Somaliland | A. E. Leatham. |
| ♀ 14 $\frac{1}{4}$ | 8 $\frac{3}{4}$ | ... | South-East Africa | F. Vaughan Kirby. |

¹ The measurements are taken from the summit of the occiput to the front of the upper jaw.

- Owner's measurements.

Tiger. *Felis Tigris*

Shot by His Highness
The Maharajah of
Cooch Behar.



Width 5 ft. 9 in.

Length from nose to tip of Tail
before skinning
dried skin

10 ft 1 1/2 in
11 - 7 -

Indian Tiger-Skin.



Head of Tiger.

The TIGER (*Felis tigris*).*Sher* or *Bagh*, Hindustani.

A much less noisy animal than the lion, the great striped cat of Asia is also a more variable species, of which several local races are recognised. First is the typical Bengal tiger, a large, long-limbed, lithe, and short-haired creature. A smaller and rougher-haired race (*F. tigris septentrionalis*, likewise known as *F. t. virgata*) inhabits the Caspian provinces of Persia, and also extends into the Caucasus. The Manchurian tiger (*F. t. mongolica*) is characterised by its large size, heavy build, short limbs, and the great length and thickness of the winter coat, which may be less fully striped than in Indian specimens. The Javan tiger (*F. t. sondaica*) differs, among other features, by the amount of white on the face. The Maharaja of Cooch Behar measured a tiger standing 3 ft. 10½ ins. at the shoulder.

Distribution.—From the Caucasus through Northern Persia, India, Assam, Burma, the Malay Peninsula, Sumatra, Java, and China, to Manchuria, Amurland, and Korea. In India ranging from an elevation of some 7000 feet in the Himalaya to Cape Comorin, but unknown in Ceylon.

Owner's Measurements.

| Length before skinned. | Length of body. | Length dressed. | Girth of body. | Upper arm. | Girth Fore- arm. | Head. | Height at Shoulder. | Weight. | Locality. | Owner. |
|------------------------------|--------------------|--------------------|-------------------|---------------|------------------------|-------|------------------------|---------|--------------------------------|-----------------------------------|
| ft. ins. | ft. ins. | ft. ins. | ins. | ins. | ins. | ins. | ft. ins. | lbs. | | |
| 11 0 | ... | ... | ... | ... | ... | 38 | ... | ... | Seonla | H.H. the Maharaja of Datia. |
| 10 7 (A) | 7 0 | 12 1 | 56½ | 25 | 19½ | 36 | 3 4 | 491 | Ramshai Háb, Duars, Bengal | Col. Evans Gordon. |
| 10 5½ | 7 1½ | ... | ... | ... | 19½ | ... | ... | ... | ? | Lieut.-Gen. Sir R. Hart. |
| 10 5 | 6 11 | 12 10 | 51 | 26 | 18½ | 36 | 3 5 | 504 | Cooch Behar | His Majesty the King. |
| 10 5 | ... | ... | ... | ... | ... | ... | ... | ... | Nepal. | Sir Savile Crossley, Bart. |
| 10 4 | 7 1½ | 12 2½ | 52 | ... | 21 | 39 | 3 6 | ... | Bijnor, United Provinces | The late A. M. Markham. |
| 10 4 (D) | ... | ... | ... | ... | ... | ... | ... | ... | Kanara | W. Holland. |
| 10 4 (F) | ... | ... | ... | ... | ... | ... | ... | ... | Duars. | Major S. H. Pollen. |
| 10 3 | 7 1½ | 12 1 | 52 | 29 | 19½ | 36½ | 3 4½ | 487 | Cooch Behar | H.H. the Maharaja of Cooch Behar. |
| 10 3 (C) | 7 1 | 12 2 | 49 | ... | 19½ | 32½ | 3 4 | ... | Patli Dun, United Provinces | The late A. M. Markham. |
| 10 2½ | ... | ... | ... | ... | ... | ... | ... | ... | Nepal Terai | Sir E. L. Durand, Bart. |
| 10 2½ | 7 0 | ... | 48½ | 26½ | 20 | 38½ | 3 3½ | 530 | Cooch Behar | H.H. the Maharaja of Cooch Behar. |
| 10 2 | 7 0 | ... | 55½ | 26 | 20 | ... | 3 3 | 546 | | |
| 10 2 | ... | ... | ... | ... | ... | ... | ... | ... | Central Provinces | H.H. the Maharaja of Bikanir. |
| 10 1¾ | 6 10 | 12 4 | 51½ | 28½ | 13½ | 38 | 3 4½ | 462 | Cooch Behar | H.H. the Maharaja of Cooch Behar. |
| 10 1½ | 7 1½ | 11 7 | 54 | 29 | 21 | 40½ | 3 8½ | 600 | | |
| 10 0½ | ... | 12 6 | 66 | ... | ... | ... | ... | ... | Rewa, C.P. | H. Bliss. |
| 10 0 | 6 11 | ... | 52 | 26 | 21 | 36 | 3 4 | 540 | Cooch Behar | H.H. the Maharaja of Cooch Behar. |
| 10 0 | ... | 11 0 | ... | ... | ... | ... | 3 6 | ... | Kumaon | H. Charrington. |
| 10 0 (E) | ... | 12 2 | ... | ... | ... | ... | ... | ... | Terai | R. Nolan. |
| 9 11½ (H) | 6 10½ | ... | ... | ... | 22 | ... | 3 4 | 700 | Central Provinces | Major M. D. Goring-Jones. |
| 9 11 | 6 9 | ... | 50½ | 28¾ | 20½ | 37 | 3 3½ | ... | Cooch Behar | Count E. Hoyos. |

| | | | | | | | | |
|----------|-------|-------|-----|-----|-----|------|-------------------|--|
| 9 11 | ... | 11 | 11½ | ... | ... | ... | Nepal | A. E. Leatham. |
| 9 10½ | 6 11 | ... | 54 | 19½ | 30½ | 3 4 | Cooch Behar | A. Ezra. |
| 9 10½ | 6 10½ | 12 10 | ... | ... | ... | ... | Do. | Major S. H. Pollen. |
| 9 10½ | 6 10½ | ... | 55 | ... | ... | ... | Central India | Capt. A. R. B. Cossart. |
| 9 10 | 6 6 | ... | ... | ... | ... | ... | Nepal Terai | Col. B. B. Russell. |
| 9 10 | ... | 11 8 | ... | ... | ... | ... | Hyderabad, Deccan | A. M. Rotherham. |
| 9 10 | ... | ... | ... | ... | ... | ... | Central Provinces | Prince A. Taxis. |
| 9 8½ | ... | 48 | 24½ | 17 | 34½ | 3 3½ | Hyderabad, Deccan | Major C. E. G. Norton and Capt. Sir K. Fraser, Bart. |
| 9 8½ | 10 9 | ... | ... | ... | ... | ... | Central Provinces | Lieut.-Col. R. W. Mapleton. |
| 9 8½ | ... | 50 | ... | ... | ... | ... | S. India | American National Collection. |
| 9 8 | ... | 45 | ... | ... | ... | ... | Terai | Lieut.-Col. B. D. Moller. |
| 9 8 (B) | ... | ... | ... | ... | ... | ... | North Kanara | Lieut.-Col. L. L. Fenton. |
| 9 9 5½ | 6 2½ | 42 | 20 | 15 | 35 | ... | Cooch Behar | Lord Villiers. |
| 9 5½ (C) | ... | ... | ... | 17 | 43 | ... | Deccan | Capt. W. J. R. Wingfield. |
| 9 5 | 6 4 | 10 4½ | 49 | 18 | 32½ | 3 2½ | Cooch Behar | Count Scheibler. |



Manchurian Tiger-Skin.

Skulls.

| Length from back to front. ¹ | Breadth across the zygomatic arches. | Weight cleaned. | Locality. | Owner. |
|---|---|--------------------|---------------------------------------|------------------------------------|
| | | lbs. oz. | | |
| -15 ³ / ₄ | . | . | Cooch Behar . . . | H. H. the Maharaja of Cooch Behar. |
| 15 ⁵ / ₈ | 11 ¹ / ₈ | . | ? . . . | Col. A. Pollock. |
| 15 ¹ / ₂ | 10 ¹ / ₂ | . | N.E. Bengal . . . | A. M. Murdoch. |
| 15 ¹ / ₈ | 10 ¹ / ₄ | . | Cooch Behar . . . | Lord Stavordale. |
| -15 (A) | 10 ¹ / ₃ | ... | Bengal . . . | Col. Evans Gordon. |
| 14 ² / ₈ (F) | 10 | . | Duars . . . | Major S. H. Pollen. |
| 14 ¹ / ₂ (G) | 10 ³ / ₈ | . | Deccan . . . | Capt. W. J. R. Wingfield. |
| 14 ¹ / ₂ | 10 | . | Terai . . . | Bombay Natural History Society. |
| 14 ¹ / ₂ | 10 ¹ / ₂ | . | Central Provinces . . | Capt. W. H. Hunter. |
| 14 ¹ / ₂ (H) | 10 ¹ / ₄ | . | Bijnor District, United Provinces. | The late A. M. Markham. |
| 14 ¹ / ₄ | 9 ² / ₈ | 4 12 | Duars . . . | Sir Edmund G. Loder, Bart. |
| 14 ¹ / ₄ (I) | 10 ¹ / ₂ | 5 2 | Central Provinces . . | Major M. D. Goring-Jones. |
| 14 ¹ / ₄ | 10 ² / ₈ | ... | Do. . . | Lieut.-Col. E. A. D'Arcy Thomas. |
| 14 ¹ / ₄ (J) | 9 ¹ / ₂ | ... | Kanara Jungles . . . | W. Holland. |
| 14 ¹ / ₄ (K) | 9 ¹ / ₂ | . | Terai . . . | R. Nolan. |
| 13 ¹ / ₄ | 9 ¹ / ₂ | 4 8 | Kumaon . . . | H. Charrington. |
| 13 ² / ₄ (L) | 9 ¹ / ₄ | .. | North Kanara . . . | Lieut.-Col. L. L. Fenton. |
| 13 ¹ / ₂ | 10 | 5 0 | Persia . . . | Major R. L. Kennion. |
| 13 ¹ / ₄ | 9 ¹ / ₄ | . | Kalchi . . . | H. B. Learoyd. |

- Owner's measurements.

A, B, C, D, E, F, G, H. For skins see pp. 496-497.

Skins.

| Length of skin dressed. | | Locality. | Owner. |
|-------------------------|-------------------------------|----------------|-----------------------------|
| ft. | ins. | | |
| 13 | 6 | Mongolia . . . | A. Bignold. |
| 12 | 4 | Do. . . | H. H. the Sultan of Johore. |
| 12 | 0 | Do. . . | H. R. H. the Duc d'Orléans. |
| 11 | 3 ¹ / ₂ | Do. . . | Col. W. Hall Walker. |
| 10 | 8 | Persia. . . | Major R. L. Kennion. |

¹ See note on p. 493.

The LEOPARD (*Felis pardus*).

| | |
|---|-----------------------------|
| <i>Chita</i> , Hindustani. | <i>Ngo</i> , Waganda. |
| <i>Harvard</i> , M'Kua. | <i>Nyalugwi</i> , Manganza. |
| <i>Ingwi</i> , Zulu, Swazi, Matabili, and Matonga. | <i>Shabel</i> , Somali. |
| <i>Inkwi</i> , Bechuana and Basuto. | <i>Siveri</i> , Alomwi. |
| | <i>Tijger</i> , Cape Dutch. |

The leopard has an even larger range than the lion, and is probably the most widely distributed of all the cats. Sportsmen in India recognise a larger "panther" and a smaller "leopard," although naturalists fail to distinguish them as separate forms. The typical representative of the species is the larger Indian leopard. African leopards often have the spots on the body of smaller size, and many of them without light centres, like those on the head. The West African race is *F. pardus leopardus*, and large-spotted East African leopards have been named *F. p. suahelica* and *F. p. ruwenzorii*. The Somali *F. p. nanopardus* is a very small light-coloured race. In Persia, Baluchistan, the mountains of Sind, and probably Kashmir, is found a race of the leopard (*F. p. panthera* or *tulliana*), characterised by its pale colour, long fur, and thick tail; it is to some extent intermediate between the typical race and the ounce. Lastly, there is the Manchurian leopard (*F. p. villosa* or *fontanieri*), a very distinct animal, of heavy build, with a pale ground-colour to the fur, which is very long and thick, and the spots in the form of large complete rings. In the moist forest districts of Asia black leopards are by no means uncommon, and there is a tendency to darkening of a different type in some South African specimens. Some Siamese leopards, at any rate, show the jaguar-like character of small spots within the dark rosettes. Height at shoulder from about 2 feet (India) to 2 feet 4 inches (Africa). A large leopard killed by Lieut.-Col. L. L. Fenton in the Gir Forest, Kathiawar, measured 7 feet $8\frac{1}{2}$ inches in length; the length of the tail being $35\frac{1}{2}$ inches, the girth of the neck $21\frac{1}{2}$ inches, of the forearm $11\frac{1}{2}$ inches, and of the body behind the shoulder $35\frac{1}{2}$ inches; weight, 160 lbs.

Distribution.—Africa, the Caucasus, Asia Minor, and Asia generally, with the exception of Northern Siberia, the Tibetan plateau, and Japan.

General Measurements—Indian Specimens.

| Length before skinned. | Total length dressed. | Weight. | Locality. | Owner. |
|------------------------------|--------------------------|---------|----------------|------------------------|
| ft. ins. | ft. ins. | lbs. | | |
| -8 6 | ... | ... | Kashmir . . . | Capt. A. G. Arbuthnot. |
| -8 4 | ... | ... | S. India . . . | F. Gompertz. |

— Owner's measurements.

| Length before skinned. | | Total length dressed. | | Weight. | Locality. | Owner. |
|------------------------|-----------------|-----------------------|-----------------|---------|-----------------------|--|
| ft. | ins. | ft. | ins. | lbs. | | |
| -8 | 4 | .. | .. | .. | Cooch Behar . . . | H. II. the Maharaja of Cooch Behar. |
| 8 | 2 $\frac{1}{2}$ | .. | .. | .. | Do. | Do. |
| -8 | 1 $\frac{1}{2}$ | .. | .. | .. | Do. | Do. |
| -8 | 1 $\frac{1}{2}$ | .. | .. | .. | Central Provinces . . | Capt. G. W. Hemans. |
| 8 | 0 | ... | ... | 154 | Cooch Behar . . . | H. II. the Maharaja of Cooch Behar. |
| -8 | 0 | 8 | 8 $\frac{1}{2}$ | .. | India | Count J. Potocki. |
| 7 | 11 | ... | ... | .. | Mandla | O. Kauffmann. |
| -7 | 10 | 8 | 4 $\frac{3}{4}$ | .. | Ganges Kadir . . . | See below. ¹ |
| 7 | 10 | .. | .. | .. | Mhow | Major F. W. H. Walshe. |
| 7 | 9 $\frac{1}{2}$ | 8 | 0 | .. | Central Provinces . . | Col. J. J. Harrison. |
| 7 | 9 | .. | .. | ... | Nepal | C. H. H. B. Caldwell. |
| 7 | 9 | .. | .. | ... | Oudh | Mrs. Innes. |
| -7 | 8 | ... | ... | ... | Hyderabad, Deccan . | Major C. E. G. Norton and Capt. Sir K. Fraser, Bart. |
| -7 | 8 | .. | .. | .. | Ganges Kadir . . . | Muttra Tent Club. ² |
| -7 | 8 | ... | ... | .. | U. Burma | H. Shaw Dunn. |
| -7 | 7 | 8 | 7 $\frac{1}{2}$ | ... | Siwaliks | E. H. E. Green. |
| -7 | 7 | 8 | 10 | ... | Central Provinces . . | Capt. R. D. Gardner. |
| ♀-7 | 4 | 8 | 1 | 145 | Bijnor District . . . | Major E. McK. Williams. |

- Owner's measurements.

¹ Speared by Capt. H. Hoare (5th D.G.), Major J. G. Rotton (R.A.), and Major W. Gillman (R.H.A.).

² Speared by Major A. C. King and some officers of the 5th Lancers, when out with the Muttra Tent Club.

The following are the dimensions of two leopards shot in Ceylon by Count Scheibler:—

| | Male. | | Female. | |
|--|-------|------------------|---------|-----------------|
| | ft. | ins. | ft. | ins. |
| Length from tip of nose to end of tail | 7 | 0 | 6 | 4 |
| " " root of tail | 4 | 3 $\frac{1}{2}$ | 3 | 7 |
| Height at shoulder | 2 | 2 $\frac{1}{2}$ | 1 | 9 |
| Girth | 2 | 7 | 2 | 1 |
| Circumference of upper arm | 0 | 13 | 0 | 10 |
| " forearm | 0 | 10 $\frac{3}{4}$ | 0 | 8 $\frac{1}{2}$ |

MANCHURIAN LEOPARD (*Felis pardus villosa*).

| Length before skinned. | | Total length dressed. | | Weight. | Locality. | Owner. |
|------------------------|------|-----------------------|------|---------|-------------------------|--|
| ft. | ins. | ft. | ins. | lbs. | | |
| ♂ 5 | 11 | ... | ... | 65 | Tai Kung Shan Mountains | Lieut. the Hon. R. O. B. Bridgeman, R.N. |

General Measurements—African Specimens.

| Length before skinned. | | Height at shoulder. | | Weight. | Locality. | Owner |
|------------------------|------|---------------------|------------------------|---------|---------------------------------------|---------------------------|
| ft. | ins. | ft. | ins. | | | |
| 8 | 7 | .. | .. | ... | East Africa | K. V. Painter. |
| -8 | 1½ | . | . | ... | Niwimbi, Portuguese Nyasaland | J. Sealy-Bell. |
| -7 | 10½ | 2 | 7½ | ... | East Africa | Marquis Pizzardi. |
| ♀-7 | 9 | 2 | 3½ | ... | Matabililand | Rhodesia Museum. |
| -7 | 9 | .. | .. | ... | Sudan | Gustav von Dippe. |
| -7 | 7½ | 2 | 6 | ... | East Africa | Percy C. Madeira. |
| -7 | 6 | . | . | ... | Do. . . . | Lady Grisel Hamilton. |
| -7 | 3½ | . | . | ... | Somaliland | Count J. Potocki. |
| -7 | 3½ | ... | ... | 136½ | N.W. Rhodesia | C. H. S. Bellis. |
| -7 | 3 | . | . | ... | Wadelai, E.C. Africa | Maj.-Gen. W. P. Pulteney. |
| 7 | 2 | . | . | ... | Somaliland | Count Scheibler. |
| -6 | 10½ | 2 | 4½ | ... | Gondokoro | Dr. A. MacCarthy Morrogh. |
| -6 | 10 | . | . | ... | Somaliland | Count Scheibler. |
| -6 | 10 | ... | ... | 140 | Nyasaland | A. White. |
| -6 | 3 | . | . | ... | Somaliland | Norman B. Smith. |
| -6 | 0 | . | . | ... | Do. . . . | Count E. Hoyos. |
| ♀-5 | 10½ | 2 | 1 | 55 | East Africa | Capt. R. Meinertzhagen. |
| -5 | 7 | 1 | 10 (girth 21½ ins.) | ... | Nigeria | Maj.-Gen. T. D. Pilcher. |

The following specimens were shot and measured by Mr. F. Vaughan Kirby; the first being from the Nguanetsi River, and the second from the Matamiri Bush, S.E.A. :—

| Length, tip to tip in a straight line. | | Length over all—"sportsman's" measurement. | | Shoulder height. | | Girth of neck. | Girth behind shoulder. | Girth of forearm. | Length of skull. | Zygomatic width. | Cleaned weight. |
|--|------|--|------|------------------|------|----------------|------------------------|-------------------|------------------|------------------|-----------------|
| ft. | ins. | ft. | ins. | ft. | ins. | | | | | | |
| 6 | 11 | 7 | 2 | 2 | 7 | 22 | 35½ | 12½ | 9½ | 6½ | 1 8 |
| 6 | 9 | 7 | 2 | 2 | 7 | 20 | 33½ | 11½ | 9 | 5½ | .. |

Skulls.

| Total length. | Width. | Weight. | Locality. | Owner. |
|---------------|--------|----------|---|----------------------------|
| ins. | ins. | lbs. oz. | | |
| 11¼ | 7½ | 1 12 | Gabun | Sir Edmund G. Loder, Bart. |
| -10¼ | 6½ | .. | Bijnor District, United Provinces | The late A. M. Markham. |
| 10¼ | .. | .. | White Nile | A. L. Butler. |
| 10½ | 6½ | .. | Gir Forest, Kathiawar | Lieut.-Col. L. L. Fenton. |
| 10 | 6½ | 1 6 | Belgaum, India | Sir Edmund G. Loder, Bart. |
| 9 | 5½ | 1 3 | Somaliland | J. H. Thomson. |

- Owner's measurements.

The SNOW-LEOPARD or OUNCE (*Felis uncia*).*Shieh Pao*, of Chinese.

Although the Persian leopard is in some degree intermediate in respect to colour and the length of the coat, the ounce differs from the leopard by the ground-colour of the long and dense fur being dirty white, with the spots on the back, sides, and tail in the form of large, irregular, ill-defined and interrupted rings, and by the great thickness of the tail, which scarcely tapers, and is about three-quarters the length of the head and body. Height at shoulder about 2 feet 4 inches.

Distribution.—The high ranges of Central Asia, including Gilgit, Hunza, Turkestan, Trans-Baikalia, Ladak, Tibet, Amurland and Western China, extending in the north-west to the Altai, and in the west, it is said, to Persia. In Prince Demidoff's *Hunting Trips in the Caucasus* a snow-leopard is figured as coming from that range, but the animal found there is *F. pardus panthera*. The snow-leopard generally dwells at elevations of over 8000 feet, but descends in Gilgit during winter to 6000 feet.

| Length dressed. | | Weight. | Locality. | | Owner. |
|-----------------|----------------|---|--------------|---|-----------------------------|
| ft. | ins. | | | | |
| 8 | 8 | ... | Central Asia | . | A. Ezra. |
| 8 | 8 | ... | Baltistan | . | C. M. Hawes. |
| 8 | 6 | ... | ? | . | Capt. B. C. Graham. |
| 8 | 6 | Skull, $7\frac{3}{4} \times 5\frac{1}{2}$ | Baltistan | . | R. Rankin. |
| 8 | $2\frac{1}{2}$ | ... | Do. | . | E. Langworthy. |
| (raw) | | | | | |
| 7 | 10 | ... | Near Leh | . | Lieut.-Col. S. Frewen. |
| -7 | 8 | ... | China | . | M. Mitchell. |
| -7 | $5\frac{3}{4}$ | ... | Pamir | . | Viscount Edmond de Poncins. |
| -7 | 5 | ... | ? | . | Major F. J. Harden. |
| -7 | 4 | Skull, $7\frac{1}{2} \times 4\frac{1}{2}$ | Kashmir | . | Major H. C. Tytler. |
| -7 | 4 | (24 inches at shoulder) | | . | The late R. A. Sterndale. |

- Owner's measurements.



Skin of Snow-Leopard.

The CLOUDED LEOPARD (*Felis nebulosa*).*Kwei ko-pao*, Chinese.

The *ariman-dahan*, as this species is called by the Malays, is the size of a small leopard, with a very long and thickly furred tail, and large upper tusks. The ground-colour of the fur varies from greyish brown to fulvous, upon which are large dark blotches, frequently bordered in part with black. In old specimens the blotches often disappear, leaving only the black borders.

Distribution.—From the Sikhim and Bhutan Himalaya, through Assam, Burma, Siam, and the Malay Peninsula, to Sumatra, Java, and Borneo. Represented by a smaller variety (*F. nebulosa brachyurus*) in Formosa.

Skins.

| Length dressed. | | Weight. | Locality. | Owner. |
|-----------------|------|---------|--------------|---------------------------|
| ft. | ins. | lbs. | | |
| 6 | 6 | ... | Assam . . . | The late B. H. Hodgson. |
| 6 | 5 | ... | Yunnan . . . | M. Mitchell. |
| 6 | 4 | 44½ | ? | The late R. A. Sterndale. |
| 5 | 9 | ... | ? | Capt. B. R. M. Glossop. |
| 5 | 7½ | .. | Assam . . . | P. Russel. |

— Owner's measurements.

Skulls.

| Basal length from back to front. | Breadth. | Locality. | Owner. |
|-------------------------------------|----------|-------------|-------------------------|
| 6.2 ins. | 4.75 | Assam . . . | The late B. H. Hodgson. |

The JAGUAR (*Felis onca*).

This cat may be regarded as the American representative of the leopard, which it fully equals, even if it does not exceed, in size. The colour and markings are generally similar to those of the latter, but the dark rings are larger and arranged more definitely in groups, each ring usually enclosing one or more dark central spots, and the enclosed light area being of the same tint as the general ground-colour of the fur, which is typically of a rich tan. Usually seven or eight more or less distinct longitudinal rows of rosettes may be noticed on each side of the body. The tail is shorter than a leopard's.

Distribution.—America, from Louisiana, Texas, and Northern Mexico to about the Rio Negro on the northern confines of Patagonia in lat. 40° S.

| Length before skinning. | | Length dressed. | | Locality. | Owner. |
|----------------------------|-----------------|--------------------|------|----------------|-------------------------|
| ft. | ins. | ft. | ins. | | |
| -9 | 3 | 9 | 3 | Brazil . . . | Count Henry Coudenrove. |
| -8 | 3 $\frac{3}{4}$ | ... | | Do. . . . | Do. |
| -6 | 11 | 7 | 9 | Paraguay . . . | Col. J. J. Harrison. |

The PUMA (*Felis concolor*).

With the exception of the small and long-tailed jaguarondi and eyra, the puma (pronounced pooma) is the only uniformly coloured cat found in America, where its range extends from British Columbia and Maine in the north to the Strait of Magellan in the south. The size is inferior to that of the jaguar, the height at the shoulder being about 2 feet, and the weight 150 lbs. The general colour of the fur is tawny, tending, like that of the white-tailed deer, to reddish in summer and to greyish in winter, with the middle of the back darker, and a whitish patch on the back of the otherwise black ears. But with such an enormous geographical range, it is inevitable there should be much local variation ; and a number of races are now recognised, most of which are distinguished by size or the redder or greyer tint of the fur. A Patagonian race has pale ears.

| Length in the field. | | Weight. | Locality. | Owner. |
|-------------------------|-----------------|-----------|----------------------------------|-------------------------|
| ft. | ins. | | | |
| -8 | 6 | about 150 | ? | A. Pendarves Vivian. |
| -7 | 6 $\frac{5}{8}$ | ... | Brazil | Count Henry Coudenrove. |
| -7 | 5 | ... | Gallegos River, Patagonia . | W. Moncreiffe. |
| -7 | 3 | ... | Fraser River, British Columbia . | The late J. Fannin. |
| -7 | 0 | ... | Wyoming | J. L. Scarlett. |

- Owner's measurements.

LYNXES (*Felis lynx*, etc.).

The lynxes form a well-marked group connected with the more typical members of the cat tribe by the jungle-cat (*F. chaus*), and distinguished by the tuft of long hairs at the summit of the ears, and the absence of the first upper cheek-tooth. From the others the caracal

(*F. caracal*), of Africa and India, is broadly distinguished by its long tail and uniform rufous colour. The short-tailed lynxes are, however, a group in which it is very difficult to determine whether the variations indicate distinct species or local races. In the typical European lynx (*F. lynx*) the tail is very short, the throat has a ruff of long hair, and the coat is spotted with dark brown; the Tibet lynx (*F. lynx isabellina*) is a pale variety, and the Canadian lynx (*F. lynx canadensis*), which ranges as far south as California, is another race. The red lynx (*F. rufa*), which is also widely extended in America, and has numerous local races, is a second species. From differences in the form of the skull, the Spanish lynx (*F. pardina*), which is a fully spotted animal, is also classed as a distinct species. It ranges over a large portion of Southern Europe, including Turkey, Greece, Sicily, Sardinia, and Spain and Portugal. The ordinary lynx stands from 16 to 18 inches at the shoulder.

(a) EUROPEAN LYNX.

| Length in the field, nose to root of tail. | Height at shoulder. | Locality. | Owner. |
|--|---------------------|-----------------------|--------------------------------|
| -49½ ins. | ... | Andalusia . . . | Abel Chapman. |
| -42'9 " | ... | Eastern Carpathians . | Prince Henry of Liechtenstein. |
| -42 " | 23 | Do. . | Count Henry Coudenove. |

(b) TIBETAN LYNX.

Height at shoulder, 16 or 18 inches.

(c) CANADIAN and RED LYNX.

| Length in the field, nose to root of tail. | Height at shoulder. | Weight. | Locality. | Owner. |
|--|---------------------|-----------------|-----------------|---------------------------|
| ¹ -38 ins. | 25 | 60 lbs. (about) | Wyoming . . . | Major G. Dalrymple White. |
| -33 " | 17 | ... | Do. . . | Capt. M. McNeill. |
| ² -32 " | 22 | 40 lbs. (about) | Nova Scotia . . | Major G. Dalrymple White. |

- Owner's measurements.

¹ Canadian Lynx.

² Bay Lynx.

(d) CARACAL.

| Flat skin. | Locality. | Owner. |
|------------|--------------------------------|---------------|
| 46½ ins. | Nr. Grahamstown, S. Africa . . | Dr. H. Smith. |

The HUNTING-LEOPARD or CHITA (*Cynælurus jubatus*).

Although this animal is commonly called chita (cheetah) by Anglo-Indian sportsmen, that name is at least as often applied in India to the leopard. From all the true cats and lynxes the hunting-leopard differs by the claws being capable of only partial withdrawal into their sheaths, so that their tips are always exposed. The body also is more slender, and the limbs are proportionately longer. The black spots on the skin are small and without light centres, like those on the head of the leopard. Length, 7 feet or less; height at shoulder, 30 to 39 inches. A specimen speared by Lieut.-Col. L. L. Fenton in Kathiawar measured 6 feet $\frac{1}{4}$ inch in length, the tail being 2 feet $2\frac{1}{4}$ inches.

This animal is the "Ihlose" of the Zulus and Swazis, and is distributed sparsely throughout S.E. Africa. Hunting-leopards usually hunt in couples, and fairly stalk their game, securing it with a swift rush at the last. Mr. F. Vaughan Kirby writes that "I have seen a party of six hunting together and another of eight. Though I have often tried, I have never yet succeeded in running into one on horseback; they are incredibly swift of foot. They invariably kill their prey by strangulation."

Distribution.—Africa and South-Western Asia, extending from Persia to Western Turkestan and the countries east of the Caspian, and eastwards into India; unknown in the latter country on the Malabar coast and to the north of the Ganges, as it also is in Ceylon.

| Length. | Length of tail. | Height at shoulder. | Locality. | Owner. |
|--------------------|-------------------|---------------------|--------------------|-------------------------|
| ft. ins. | ft. ins. | | | |
| -7 9 | ... | ... | East Africa . . | Capt. R. Meinertzhagen. |
| -7 3 $\frac{1}{4}$ | ... | ... | N.W. Rhodesia . . | C. H. S. Bellis. |
| -6 6 | 2 2 | ... | East Africa . . | Percy C. Madeira. |
| -6 6 | 2 6 $\frac{1}{2}$ | ... | Zululand . . . | A. Cameron. |
| 6 4 $\frac{3}{4}$ | 2 3 $\frac{1}{2}$ | 28 $\frac{1}{2}$ | N.E. Transvaal . . | Dr. Percy Rendall. |
| 6 3 | 2 4 $\frac{3}{4}$ | 29 $\frac{1}{2}$ | East Africa . . | H. C. Williams. |

— Owner's measurements.

The following are the dimensions of a specimen shot in the Eastern Transvaal by Mr. F. Vaughan Kirby:—

| Total length in straight line. | Do. over all. | Tail. | Vertical height. | Girth of forearm. | Do. shoulders. |
|--------------------------------|---------------|--------------|-----------------------------|----------------------|----------------|
| 6 ft. 8 ins. | 7 ft. 7 ins. | 2 ft. 9 ins. | 2 ft. 11 $\frac{1}{2}$ ins. | 8 $\frac{1}{4}$ ins. | 31 ins. |

The SPOTTED HYÆNA (*Hyæna crocuta*).

| | |
|---------------------------|---------------------------------------|
| <i>Uaraba</i> , Somali. | <i>Ugandu</i> , Mpisi. |
| <i>Yangula</i> , Danakil. | <i>Setongwani</i> , Barotsi. |
| <i>Jib</i> , Abyssinian. | <i>Piri</i> , Ngami. |
| <i>Kochupa</i> , M'Kua. | <i>Chimbwi</i> , Chilala and Chibisa. |

The hyænas form a small family of Carnivora allied in some respects to the cats, but distinguished by the form of the skull, the more numerous teeth (which are, however, to a considerable extent cat-like), and the four-toed feet, with non-retractile claws. The spotted hyæna is the largest of the three well-marked species, and takes its name from the large dark blotches on its tawny coat. Its carnassial teeth are more cat-like than those of the other species.

Distribution.—Africa, south of the Sahara.

| Nose to root of tail in a straight line. | | Length of tail. | | Extreme length over all. | | Standing height. | | Girth behind shoulders. | Weight. | Locality. | Owner. |
|--|------|-----------------------|------|--------------------------------|------|---------------------|------|-------------------------------|---------|-------------|-------------------------|
| ft. | ins. | ft. | ins. | ft. | ins. | ft. | ins. | ins. | lbs. | | |
| -5 | 0 | ... | ... | ... | ... | ... | ... | 29 | 121 | East Africa | Capt. R. Meinertzhagen. |
| -4 | 9½ | 1 | 1 | 6 | 3 | 3 | 0 | 39½ | ... | ... | F. Vaughan Kirby. |
| -4 | 8 | ... | ... | ... | ... | 2 | 6 | ... | ... | Somaliland | J. H. H. Dodds. |

Skulls.

| Length. | | Width. | | Weight. | | Locality. | | Owner. |
|---------|------|--------|------|---------|-----|-------------------|---|---|
| ins. | ins. | ins. | ins. | lbs. | oz. | | | |
| -12½ | 7½ | 2 | 8 | ... | ... | South-East Africa | . | F. Vaughan Kirby. |
| -12½ | 7¾ | 2 | 12 | ... | ... | Zomba, B.C.A. | . | D. MacAlpine. |
| 12 | 8 | ... | ... | ... | ... | Somaliland | . | J. H. H. Dodds. |
| 11½ | 7⅝ | ... | ... | ... | ... | Benue River | . | Capt. E. J. Wolseley. |
| -11 | 7½ | ... | ... | ... | ... | Somaliland | . | Viscount Edmond de Poncins. |
| -10⅝ | 6¾ | ... | ... | ... | ... | South-East Africa | . | Sir Edmund G. Loder, Bart. |
| -10⅝ | 6¾ | 2 | 3 | ... | ... | East Africa | . | The late Rear-Admiral R. A. J. Montgomerie, R.N. |

The STRIPED HYÆNA (*Hyæna striata*).

Distribution.—India, Arabia, etc., and North and East Africa.

| Nose to root of tail. | | Length of tail. | | Standing height. | | Locality. | | Owner. |
|--------------------------|------|--------------------|------|---------------------|------|------------|---|----------------------------|
| ft. | ins. | ft. | ins. | ft. | ins. | | | |
| -4 | 4½ | ... | ... | 2 | 2½ | Somaliland | . | J. H. H. Dodds. |
| -3 | 6 | 1 | 5 | ... | ... | India | . | The late Dr. T. C. Jerdon. |

— Owner's measurements.



LIFE SIZE

Skull of Kamchatkan Bear.

BEARS (Ursidæ).

Bears are so unlike other animals and so like one another that no one has the slightest difficulty in recognising a member of the group when he sees it. They constitute a family of Carnivora—the *Ursidæ*—and are spread over the greater part of the globe, with the exception of Africa to the south of the Sahara desert, and the Australasian islands. As some of their leading characteristics, mention may be made of their large bodily size, clumsy build, shaggy fur, generally uniform coloration, the very short tail, and the application of the whole sole of the foot to the ground in walking. The skull and teeth are likewise very peculiar and distinctive, although these need not be taken into consideration in this place.

In consequence of the marked similarity to one another of most members of the group, it is a matter of extreme difficulty to come to a definite conclusion as to the number of species of bears. The typical member of the group is the familiar brown bear (*Ursus arctus*) of Europe, whose colour is generally a darker or lighter shade of brown, but occasionally tends to greyish. The Syrian bear (*U. arctus syriacus*), in which this greyish tinge predominates, may be regarded as a local variety, and the same is the case with the snow-bear of Kashmir (*U. arctus isabellinus*), in which the colour is generally a light creamy brown. European specimens probably seldom exceed 8 feet, but the Siberian and Kamchatkan bears (*U. arctus collaris* or *piscator*) grow to 9 feet. Even more gigantic is the Kodiak bear (*U. arctus middendorfi*) of Kodiak Island, Alaska; while the Yezo bear (*U. arctus yesoensis*) of Japan is another large race, with much the external appearance of a grizzly. The Alaskan bear (*U. arctus dalli*), from the

mainland of Alaska, is also a huge animal, slightly smaller than the one from Kodiak Island, with more resemblance to an ordinary brown bear than to a grizzly. The grisly or grizzly of the Rocky Mountains is a smaller bear, with longer, straighter, and whiter claws, and is generally regarded as representing a second species (*U. horribilis*). A race of this species is the Barren-Ground bear (*U. h. richardsoni*); and the species seems to be represented in Asia by the Tian Shan *U. h. leuconyx*. The last member of the group is the African bear (*U. arctus-crowtheri*), of North-Western Africa, still imperfectly known. The extinct cave-bear (*U. spelæus*) is a large species allied to the brown bear.

The little blue bear (*U. pruinus*) of Tibet, with more or less of white on the head and shoulders, seems to form a distinct species. The same is the case with the American black bear (*U. americanus*), which exhibits distinctive features in the skull and teeth, and is generally black, although it may be grey, or even white. Not improbably the Himalayan black bear (*U. torquatus*), which may be recognised by the conspicuous white gorget on the breast, is a relative of the last-named species. In Japan it is represented by the Japanese black bear (*U. japonicus*). One of the smallest species of the genus is the very distinct Malay bear (*U. malayanus*), which ranges into Sze-chuen; and allied to this is the spectacled bear (*U. ornatus*) of the Peruvian and Bolivian Andes, distinguished by the light-coloured rings generally surrounding the eyes, from which it derives its name.

The most distinct of all the species included in the genus *Ursus* is the Polar bear (*U. maritimus*), so distinct, indeed, that many naturalists consider it ought to form a genus by itself. Externally its chief characteristics are its white coat, and the presence of a certain amount of hair on the soles of the feet; both these peculiarities being evidently adaptations to the Arctic habitat of the animal. Very old Polar bears exhibit a tendency to the development of a brownish tinge in the fur. Last of all comes the Indian sloth-bear (*Melursus ursinus*), which is so different from the other kinds as to represent a genus by itself. It is too well known an animal to need description, some of its characteristics being the long and bare snout, the ragged, wiry hair, extensile tongue, small cheek-teeth, and the diminished number of front teeth.

(a) Skulls.

| Basal length from back to front. | Width across the zygomatic arches. | Weight cleaned. | Race, or Species. | Locality. | Owner. |
|--|---|--------------------|----------------------|----------------|------------------------------|
| ins. | ins. | lbs. oz. | | | |
| > -20 $\frac{1}{2}$ | 11 $\frac{1}{4}$ | ... | ... | Alaska . | J. W. Anderson. |
| > 18 $\frac{3}{4}$ | 11 $\frac{3}{8}$ | 12 0 | Cave bear | Europe . | Sir Edmund G. Loder, Bart. |
| > -18 $\frac{3}{8}$ | 10 $\frac{1}{2}$ | ... | ? | Alaska . | F. T. Colby. |
| - 18 | 11 | 10 0 | Kamchat- kan | Siberia . | Hon. Walter Rothschild. |
| 17 $\frac{1}{2}$ | 9 $\frac{1}{8}$ | 6 5 | ? | Alaska . | Capt. C. R. E. Radclyffe. |
| -17 $\frac{1}{4}$ | 10 $\frac{3}{8}$ | ... | ... | Do. . | Rev. Dr. R. J. Nevin. |
| 17 $\frac{1}{4}$ | 10 | 6 12 | ... | Kamchatka . | P. Niedieck. |
| > 16 | 9 $\frac{3}{8}$ | 5 8 | Polar . | Novaia Zemlia | J. Lamont. |
| 15 $\frac{7}{8}$ | 10 $\frac{1}{2}$ | 5 13 | Do. . | Polar Seas . | Sir Edmund G. Loder, Bart. |
| 15 $\frac{3}{4}$ | 9 $\frac{1}{8}$ | 5 14 | ... | Kamchatka . | Capt. C. R. E. Radclyffe. |
| 15 $\frac{1}{2}$ (D) | 9 $\frac{1}{2}$ | 5 10 | Grizzly . | Brit. Columbia | Sir Peter Walker, Bart. |
| 15 $\frac{3}{8}$ | 9 $\frac{1}{4}$ | 4 10 | Kamchat- kan | Kamchatka . | Capt. R. E. R. Benson, R.N. |
| 14 $\frac{1}{2}$ | 9 | ... | Brown . | Do. | St. George Littledale. |
| -14 $\frac{5}{8}$ | 8 $\frac{1}{8}$ | 4 2 | Grizzly . | Montana . | Sir Edmund G. Loder, Bart. |
| 14 $\frac{1}{2}$ | 8 $\frac{1}{4}$ | 4 8 | Do. . | Brit. Columbia | S. B. Bennett. |
| 14 $\frac{3}{8}$ (C) | 8 $\frac{1}{4}$ | 5 0 | Do. . | New Mexico . | Montague Stevens. |
| 14 $\frac{1}{4}$ | 8 $\frac{1}{4}$ | 3 12 | Brown . | Europe . | Walter Winans. |
| 13 $\frac{5}{8}$ | 8 $\frac{3}{4}$ | ... | Snow . | Kashmir . | Capt. B. H. Shaw-Stewart. |
| -13 $\frac{1}{2}$ | 8 | 3 1 | ... | Do. . | Sir Edmund G. Loder, Bart. |
| -12 $\frac{7}{8}$ | 7 | ... | Sloth . | Mysore . | Capt. M. M'Neill. |
| 12 $\frac{1}{2}$ | 7 $\frac{3}{8}$ | ... | Do. . | Cent. Prov. . | C. F. Egerton. |
| 12 $\frac{1}{2}$ | 7 | ... | Grizzly . | Wyoming . | J. L. Scarlett. |
| 12 $\frac{1}{2}$ (B) | 6 $\frac{3}{4}$ | ... | Sloth . | Cent. Prov. . | Surgeon-Major M. O'C. Drury. |
| 12 $\frac{3}{8}$ | 7 $\frac{5}{8}$ | ... | Snow . | Kashmir . | A. Ezra. |
| 12 $\frac{3}{8}$ | 7 $\frac{1}{2}$ | ... | Do. . | Do. . | Col. C. B. Wood. |
| 12 $\frac{1}{8}$ | 7 $\frac{5}{8}$ | ... | Grizzly . | Wyoming . | J. L. Scarlett. |
| 12 | 7 $\frac{1}{8}$ | ... | Sloth . | Cent. Prov. . | C. F. Egerton. |
| -11 $\frac{7}{8}$ | 7 $\frac{1}{4}$ | ... | Black . | Newfoundland | Percy C. Madeira. |
| 11 $\frac{1}{2}$ (A) | 6 $\frac{3}{4}$ | ... | Brown . | W. Caucasus | St. George Littledale. |
| -8'5 | 8'3 | ... | Malay . | Borneo . | The late W. T. Blanford. |

- Owner's measurements.

(b) Skins.

| Length from nose to tip of tail. | Length of skin. | Height at shoulder. | Girth. | Weight. | Race, or Species. | Locality. | Owner. |
|---|--------------------|-------------------------------|-----------------|----------------|----------------------|-----------------------|-------------------------------------|
| ft. ins. | ft. ins. | ft. ins. | ft. ins. | lbs. | | | |
| .. | -13 6 | ... | ... | 1656 | Kodiak | Kodiak Island, Alaska | J. C. Tolman. |
| .. | -11 6 | .. | ... | ... | ? | Alaska | American Museum of Natural History. |
| ... | -11 0 | 4 0 | ... | 1460 | ? | Do. | J. W. Anderson. |
| ... | -9 8 | ... | ... | ... | Alaskan | Do. | South African Museum. |
| ... | 9 5 | ... | ... | ... | Do. | Do. | Dublin Museum. |
| .. | 9 5 | 4 6 | ... | ... | Polar | Baffin Bay | W. Livingstone-Learmonth. |
| .. | 9 5 | .. | ... | ... | Alaskan | Alaska | Hon. Walter Rothschild. |
| .. | -9 4 | 8 6 (across front paws) | ... | ... | Do. | Do. | American National Collection. |
| .. | 8 10 | 4 0 (mounted) | ... | ... | Do. | Do. | British Museum. |
| -8 7 | .. | ... | ... | 1600 | Polar | Arctic Seas | Captain Lyon. |
| -8 7 | .. | ... | ... | ... | Grizzly | Wyoming | T. P. Kempson. |
| -8 7 | .. | ... | ... | ... | Polar | Spitzbergen | A. Barclay Walker. |
| -8 6 | .. | ... | ... | ... | Do. | Franz Josef Land | Dr. S. H. T. Armitage. |
| -8 5 | .. | ... | ... | ... | Do. | Greenland | Col. Max C. Fleischmann. |
| 8 5 | .. | ... | ... | ... | Black | Kashmir | Lieut.-Col. W. Westropp White. |
| -8 3 | .. | ... | ... | ... | Kam- chatkan | Kamchatka | Dr. F. H. H. Guillemard. |
| -8 0½ | .. | ... | ... | ... | Grizzly | Wyoming | T. W. H. Clarke. |
| -8 0 | ... | 4 3½ | ... | ... | Alaskan | Alaska | J. H. Kidder. |
| -8 0 (b) | ... | 3 11 | ... | ... | Grizzly | Brit. Columbia | Sir Peter Walker, Bart. |
| -8 0 (c) | ... | ... | ... | 735 | Do. | New Mexico | Montague Stevens. |
| -7 11 | .. | ... | ... | 800 (about) | Brown | Norway | Capt. Gerard Ferrand. |
| 7 9½ | ... | ... | ... | 1162 | ... | Alaska | Capt. C. R. E. Radclyffe. |
| -7 9 | .. | ... | ... | ... | Snow | Kashmir | Lieut.-Col. C. F. Blane. |
| 7 5½ | ... | .. | ... | ... | Black | Wyoming | T. W. H. Clarke. |
| 7 4 | .. | ... | ... | ... | Snow | Kashmir | Capt. B. H. Shaw-Stewart. |
| -7 0¾ | ... | .. | ... | 680 (about) | Brown | Lithuania | Prince Radziwill. |
| -7 0 | .. | ... | ... | ... | Snow | Kashmir | Capt. C. McI. Ritchie. |
| -7 0 | ... | 3 2 | ... | ... | Sloth | India | Lieut.-Col. A. E. Ward. |
| -6 11 | ... | ... | ... | ... | Black | Wyoming | Col. J. J. Harrison. |
| -6 10 | ... | 3 0 | 4 4½ forearm | 423 | Sloth | Cooch Beha | H.H. the Maharaja of Cooch Behar. |
| -6 10 | ... | 4 1 | ... | ... | ... | Alaska | R. P. Blake. |

- Owner's measurements.

RECORDS OF BIG GAME

| Length from nose to tip of tail. | Length of skin. | Height at shoulder. | Girth. | Weight. | Race, or Species. | Locality. | Owner. |
|---|--------------------|------------------------|----------|--------------|----------------------|----------------------------|------------------------------------|
| ft. ins. | ft. ins. | ft. ins. | ft. ins. | lbs. | | | |
| -6 9½ | ... | ... | 25 | ... | Red | Kashmir | S. V. Occleston. |
| 6 8½ | ... | ... | ... | ... | Black | Garhwal | Capt. A. W. Robertson- Glasgow. |
| -6 8 (H) | ... | ... | ... | ... | Snow | Kashmir | A. Ezra. |
| 6 8 | ... | 4 0 | ... | 625 | ... | Kodiak I. | A. W. Merriam. |
| 6 7 | ... | ... | ... | ... | Black | N. Brunswick | Kenneth Crossley. |
| -6 6 | ... | ... | ... | ... | Grizzly | Wyoming | Count E. Hoyos. |
| -6 5 | ... | ... | ... | ... | Do. | Do. | J. L. Scarlett. |
| -6 4 | ... | ... | ... | ... | Black | Kashmir | The Master of Belhaven. |
| -6 3 | ... | ... | ... | ... | Grizzly | Wyoming | J. L. Scarlett. |
| -6 2½ | ... | ... | ... | ... | Black | Brit. Columbia | Count E. Hoyos. |
| -6 1½ | ... | ... | ... | ... | Sloth | Mandla, Cent. Provinces | Capt. B. H. Boucher. |
| -6 1 | ... | ... | ... | ... | Cinnamon | Wyoming | Col. J. J. Harrison. |
| -6 0½ | ... | ... | ... | ... | Sloth | Hyderabad | Count E. Hoyos. |
| -6 0 | ... | 4 6 | ... | ... | Black | ? | Col. H. G. Mainwaring. |
| -6 0 | ... | 3 0 | ... | 280 | Do. | ? | The late G. P. Sanderson. |
| 6 0 | ... | ... | ... | ... | Do. | Newfoundland | Percy C. Madeira. |
| -5 10½ | ... | 3 0 | 3 4 | ... | Snow | ? | Major H. M. Biddulph. |
| 5 5 | ... | 2 5½ | 2 10¾ | 250 about | Black | Brit. Columbia | Count Scheibler. |
| 95 2½ | ... | 2 11¼ | 4 4 | 600 about | Grizzly | Do. | Do. |
| -5 2 (A) | ... | ... | ... | ... | Brown | W. Caucasus | St. George Littledale. |
| -4 7 | ... | ... | ... | ... | ? | Asia Minor | H. O. Whittall. |

- Owner's measurements.

N.B.—Some of the specimens entered as "Grizzly" may be the Barren-Ground bear.



Head of Walrus.

The WALRUS (*Odobænus rosmarus*).

The unwieldy seal-like animals commonly known by a corruption of the Scandinavian name valross (whale-horse) form in some respects a connecting link between the true seals and the eared seals, although differing from both in the huge upper tusks which depend from the muzzle of males and females alike, as also by the thick yellow bristles covering the muzzle itself. Like the true seals, walruses have lost all traces of external ears, but, unlike the former, and like the eared seals, their huge hind-flippers are turned forwards beneath the body when on land. The molar teeth have simple flattened crowns, unlike those of most seals. Although young and adolescent walruses have fairly thick coats of yellowish fur, in old individuals the tough hide becomes almost bare, except for the aforesaid bristles. Walruses are estimated to attain a weight of from 2250 to 3000 lbs.

Walruses are exclusively confined to the Arctic seas, where they spend much of their time on the ice. There are two kinds, which

may be regarded as races of a single species ; the one restricted to the North Atlantic, and the other to the North Pacific. The distribution of these animals is by no means of circumpolar extent, the Atlantic walrus (*O. rosmarus*) apparently not ranging on the Asiatic coast east of the mouth of the river Lena ; while in America walruses do not appear to inhabit the vast extent of coast lying between the western shore of Hudson Bay and Alaska. The Pacific walrus (*O. r. obesus*), which is the larger of the two, with longer tusks, always had a restricted range, and is now scarce. Formerly the Atlantic walrus occurred in countless thousands, but in accessible situations its numbers have been greatly reduced, owing to incessant persecution for the sake of its valuable oil and ivory. Between 1870 and 1880 at least 100,000 of these animals are estimated to have been slain.

The largest walrus shot by Mr. W. Livingstone-Learmonth measured 12 feet 8 inches in length, and the tusks when extracted measured $25\frac{1}{2}$ inches in length and $8\frac{1}{2}$ in circumference at the largest part ; but, as is the case with those of nearly all old bull walruses, they were much broken at the points.

| Tusks. | | | | |
|--------------------------------|----------------------------|-----------------|--------------------|---------------------------------|
| Total length of tusk. | Weight. | Girth. | Locality. | Owner. |
| 36 | lbs. oz. ... | ... | ? | Sir Thos. Hesketh, Bart. |
| -33 $\frac{1}{2}$ ¹ | 7 10 $\frac{1}{2}$ | 8 $\frac{1}{2}$ | Kamchatka . . . | G. E. H. Barrett-Hamilton. |
| 32 $\frac{3}{8}$ | ... | 8 $\frac{3}{8}$ | ? | Bethnal Green Museum. |
| -32 | 9 9 | ... | Pacific . . . | Norwich Museum. |
| -31 $\frac{1}{2}$ | ... | 8 $\frac{7}{8}$ | Do. . . . | American National Collection. |
| 30 $\frac{5}{8}$ | ... | 9 $\frac{1}{8}$ | Kamchatka . . . | Lieut. H. A. Gillett, R.N. |
| 29 | ... | 9 $\frac{1}{4}$ | Arctic America . . | C. C. Branch. |
| -27 $\frac{1}{2}$ | ... | 8 $\frac{5}{8}$ | Pacific . . . | F. T. Colby. |
| -25 $\frac{1}{2}$ | ... | 8 $\frac{1}{2}$ | Baffin Bay . . . | W. Livingstone-Learmonth. |
| 25 | 7 10 Length from gum | 9 | Bering Sea . . . | Lieut. C. H. G. Benson, R.N. |
| ... | 22 $\frac{1}{8}$ | 7 $\frac{1}{4}$ | Spitzbergen . . . | Sir Edmund G. Loder, Bart. |
| ... | 20 $\frac{3}{4}$ | 7 $\frac{1}{2}$ | Do. . . . | Sir Victor Brooke's Collection. |
| .. | 18 $\frac{1}{2}$ | 7 $\frac{1}{2}$ | Do. . . . | Arnold Pike. |
| .. | 9 18 | 4 $\frac{3}{4}$ | Do. . . . | A. Barclay Walker. |

¹ 25 $\frac{1}{2}$ from gum.

The NARWHAL (*Monodon monoceros*).

The Arctic narwhal is the only cetacean furnished with tusks. These are present only in the male, and generally the left one alone is developed. Occasionally, however, both grow, as exemplified in a specimen in the British, and a second in the Cambridge Museum. A model of this whale is exhibited in the British Museum.

Distribution.—Arctic Seas.

Tusks.

| Length. | | Circumference. | Weight. lbs. | Owner. |
|---------|-----------------|-----------------|-----------------|-------------------------------------|
| ft. | ins. | | | |
| 9 | 4 $\frac{1}{2}$ | 7 $\frac{1}{2}$ | ... | Major H. A. Steward. |
| 8 | 8 $\frac{1}{4}$ | 8 $\frac{5}{8}$ | ... | Bethnal Green Museum. |
| -8 | 7 | ... | ... | Royal Scottish Museum. |
| 8 | 7 | 8 $\frac{1}{4}$ | 15 | Sir Edmund G. Loder, Bart. |
| 8 | 7 | 8 | ... | Rowland Ward. |
| 8 | 3 $\frac{1}{4}$ | 7 $\frac{3}{8}$ | ... | Bethnal Green Museum. |
| 8 | 2 | ... | ... | American Museum of Natural History. |
| 8 | 0 | 7 $\frac{1}{4}$ | ... | A. Barclay Walker. |
| 7 | 11 | ... | ... | J. H. Whitehouse. |

- Owner's measurements.

HINTS

FOR RECORDING THE LENGTH OF ANIMALS IN THE FIELD.

As the body lies on the ground, and where circumstances permit, proceed as follows :—

Length. Pull the nose and the tail so as to get them as nearly as possible in a straight line. Fix it with four pegs ; one at the end of nose, one at end of tail, one at root of tail, and the fourth at the nape of neck behind ears.

Height at shoulder. Put the leg or paw in a standing position and place a peg at top of withers and measure carefully standing height (*a*) with extended paw, (*b*) with spread paw, as well as length of fore and hind legs from pegs at the stomach-line.

The entries in the game-book should be as follows :—

| | |
|---|--|
| Straight length from nose to tip of tail. | Height at hind-quarters. |
| Length along curve to root of tail. | „ shoulder. |
| Length of tail. | Length of foreleg. |
| Length of head to nape of neck. | „ hind-leg. |
| Girth, upper arm. | Weight, cleaned. |
| „ forearm. | „ not cleaned. |
| „ of body. | Cleaned skull (length, breadth, height, weight). |
| „ of head. | |

In addition to these measurements, the sex, estimated age, locality, and condition of the animal, with any other features of interest, such as colour of the eyes and skin, length of the hoofs, condition of teeth, etc., should be recorded.

| | | | | | | | |
|--------------------|-------------------------------|--------------------------------------|----------------|---------------------|---------|-----------|--------|
| Greatest width. | Length to longest tine. | Circum- ference above butt. | Tip to Tip. | Breadth of palm. | Points. | Locality. | Owner. |
|--------------------|-------------------------------|--------------------------------------|----------------|---------------------|---------|-----------|--------|

| | | | | | | |
|--------------------------------------|---------------------|----------------|-------------------|---------|-----------|--------|
| Length on out- side curves. | Circum- ference. | Tip to Tip. | Widest inside. | Points. | Locality. | Owner. |
|--------------------------------------|---------------------|----------------|-------------------|---------|-----------|--------|

| | | | | | | | |
|------------------------------------|---------------------|----------------|-------------------|--------------------|---------|-----------|--------|
| Length on outside curves. | Circum- ference. | Tip to Tip. | Widest inside. | Widest outside. | Points. | Locality. | Owner. |
|------------------------------------|---------------------|----------------|-------------------|--------------------|---------|-----------|--------|

RECORDS OF BIG GAME

| Length on front curve. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|---------------------------|---------------------|-------------|-----------|--------|
|---------------------------|---------------------|-------------|-----------|--------|

| Greatest width, Outside. | Inside. | Tip to Tip. | Width of palm. | Locality. | Owner. |
|-----------------------------|---------|----------------|-------------------|-----------|--------|
|-----------------------------|---------|----------------|-------------------|-----------|--------|

| Length, straight line. | Circum- ference. | Tip to Tip. | Locality. | Owner. |
|---------------------------|---------------------|-------------|-----------|--------|
|---------------------------|---------------------|-------------|-----------|--------|

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ROWLAND WARD, F.Z.S.



"With this in his portmanteau, no one fond of shooting and collecting need any longer lament his inability to preserve his trophies, since the directions given for skinning and preserving animals of all kinds are extremely clear and simple, and rendered all the more intelligible by the wood engravings by which they are accompanied. Quadrupeds, birds, fishes, reptiles, and insects are all dealt with in turns, and directions given not merely for skinning them, but also for mounting them, if desired, a year or two (it may be) after they have been procured."—*Field*.

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